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Variations in Ragweed Pollen Exposure
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Current Concepts in Infectious Diseases
William J. Martin, M.D.

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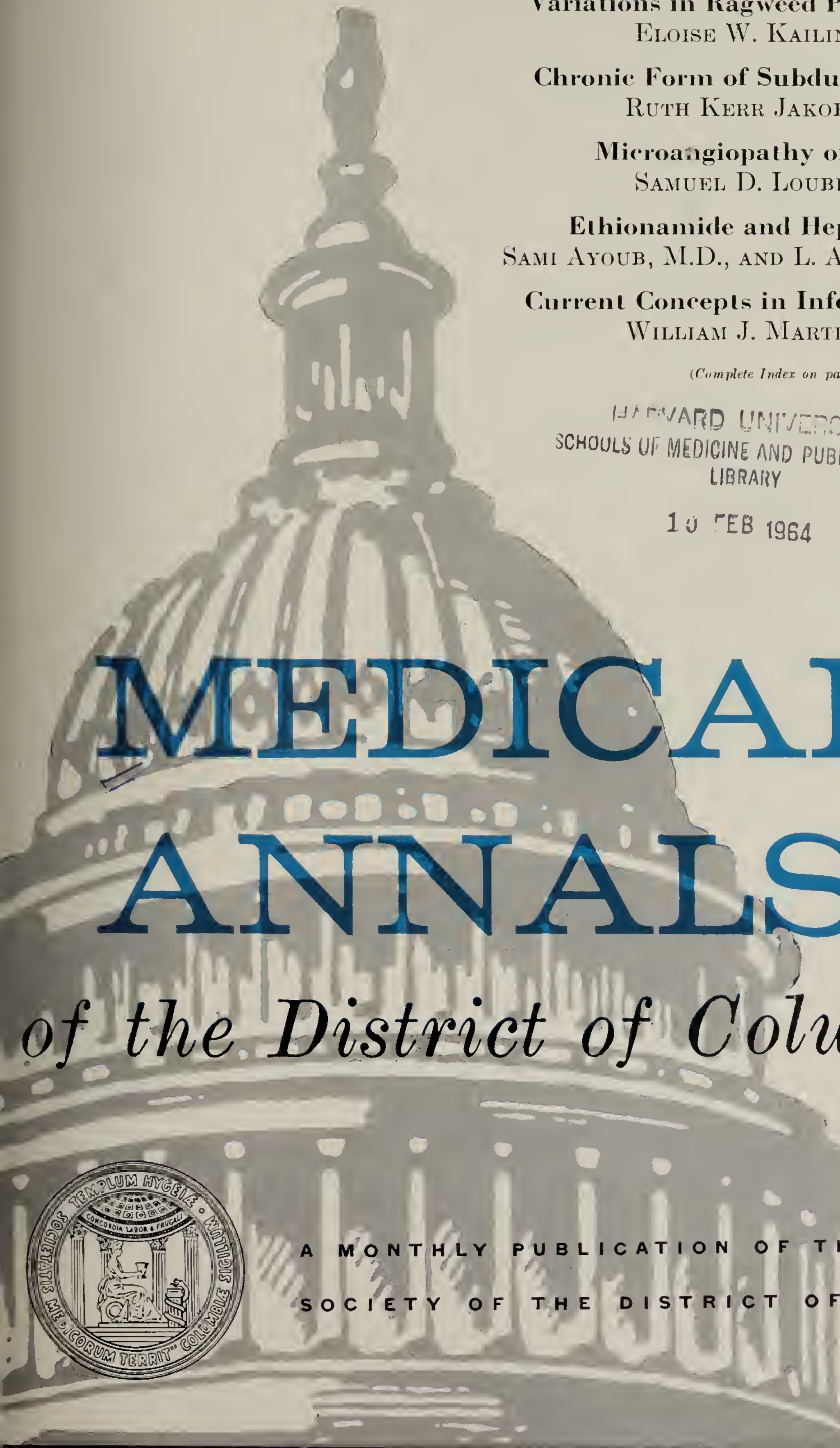

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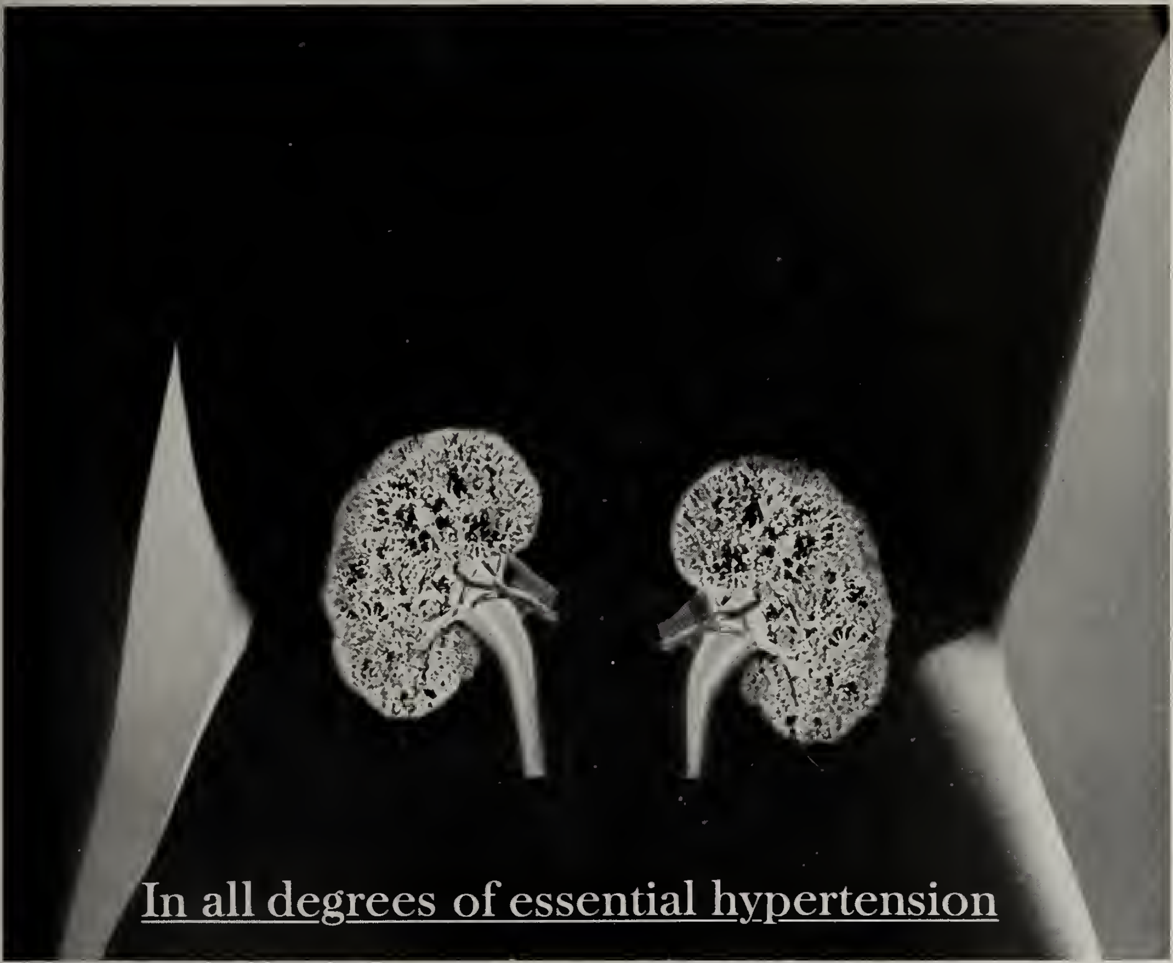
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References: (1) Moyer, J. H., and Heider, C.: Am. J. Cardiol. *9*:920 (June) 1962. (2) Brest, A. N., and Moyer, J. H.: Pennsylvania M. J. *63*:545 (Apr.) 1960. (3) Berry, R. L., and Bray, H. P.: J. Am. Geriatrics Soc. *10*:516 (June) 1962. (4) Hutchison, J. C.: Current Therap. Res. *4*:610 (Dec.) 1962. (5) Feldman, L. H.: North Carolina M. J.: *23*:248 (June) 1962.

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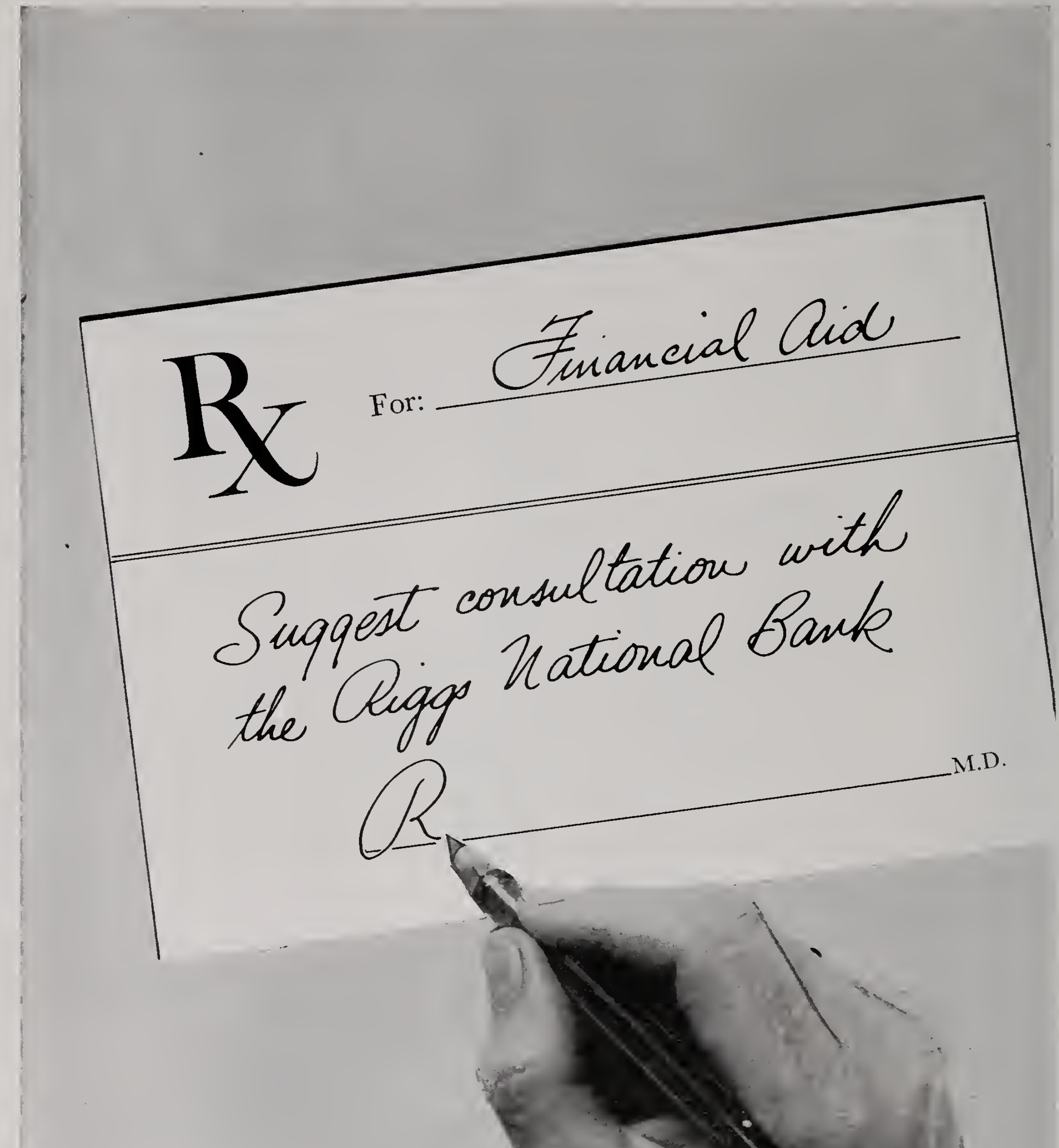

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Yearly Subscription, $4.50
Single Number, 50¢

Second-class postage paid at Baltimore, Md.
Published monthly at
Mount Royal and Guilford Avenues,
Baltimore 2, Maryland

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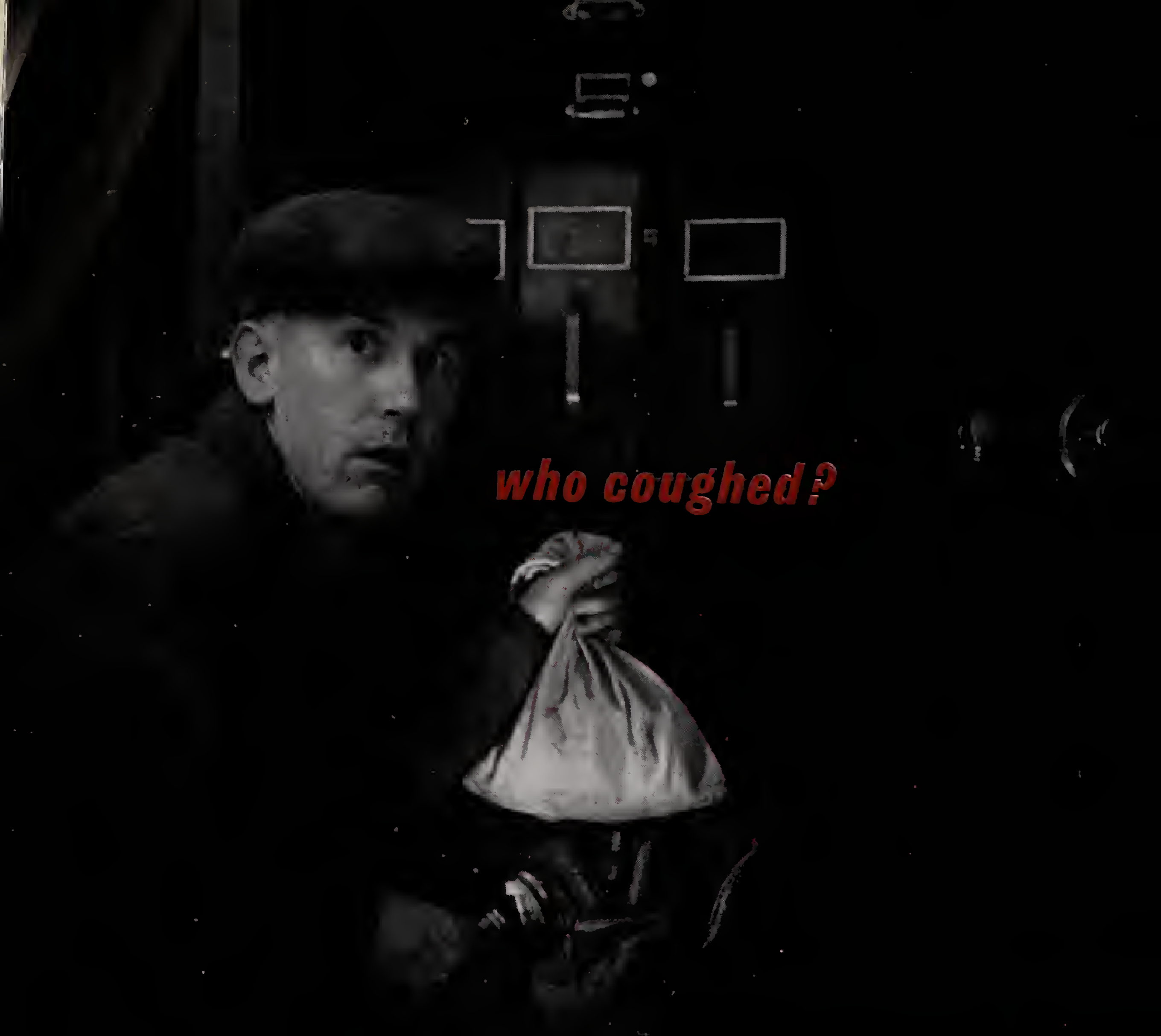
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* AMA Council on Foods and Nutrition: The Regulation of Dietary Fat, *JAMA* 181:411-423 (August 4, 1962).
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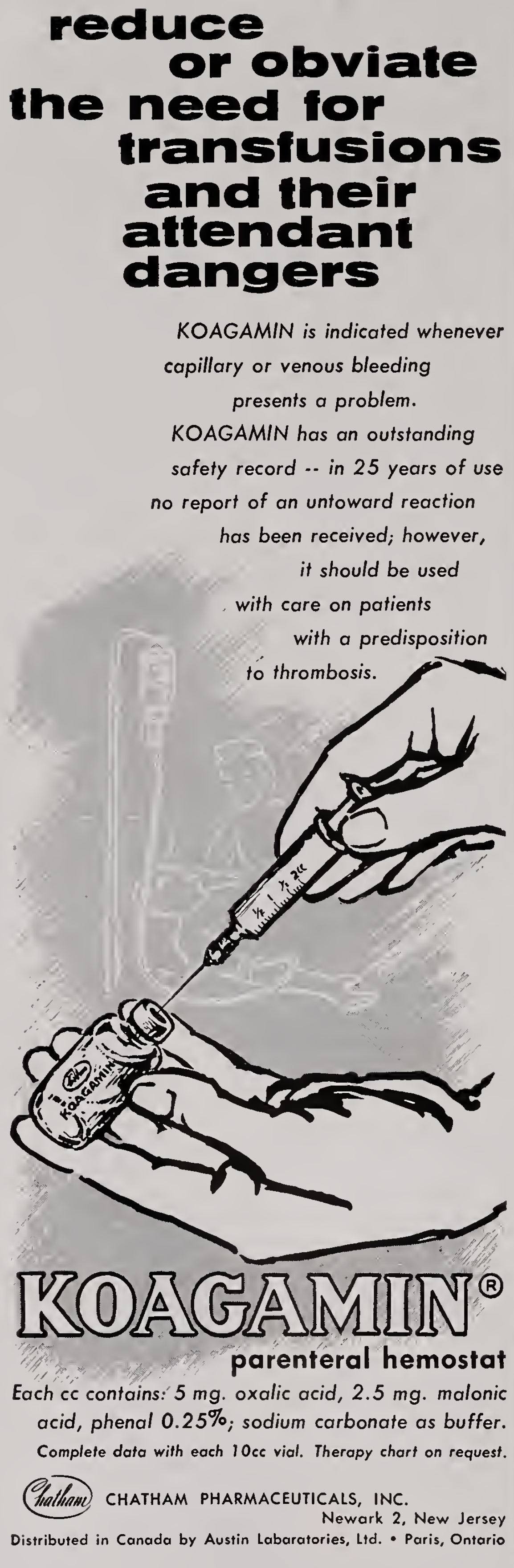

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Current Practice in Orthopaedic Surgery 1963. John P. Adams, B.S., M.D., F.A.C.S., Editor. Price, $12.75. Pp. 217, with 78 illustrations. St. Louis: Mosby, 1963.

Proceedings, Conference of Professional and Scientific Societies—Chicago—June 27–28, 1963. Price, $5.50. Pp. 179. Sponsored by Commission on Drug Safety, 221 North LaSalle Street, Chicago 1, Illinois.

Principles of Neurological Surgery. Loyal Davis, M.D., M.S., Ph.D., D.Sc. (Hon.), F.A.C.S., F.R.C.S. (England, Hon.), F.R.C.S. (Edinburgh, Hon.), and Richard A. Davis, M.D., M.S., F.A.C.S. Price, $15.00. Pp. 608, with 234 illustrations. Philadelphia: Saunders, 1963.

Atlas of Bone Tumors, including tumorlike lesions. W. S. Gilmer, Jr., M.D., F.C.A.P., G. B. Higley, Jr., M.D., and W. E. Kilgore, M.D. Price, $27.50. Pp. 165, with 311 figures, including 190 in color. St. Louis: Mosby, 1963.

Synopsis of Ophthalmology, 2nd ed. William H. Havener, B.A., M.D., M.S. (Ophth.). Price, $7.85. Pp. 395, with 249 illustrations. St. Louis: Mosby, 1963.

Anesthesia for Surgery of the Heart, 2nd ed. Kenneth K. Keown, M.D., F.A.C.A. With chapters by Emerson A. Moffitt, M.D., Richard A. Theye, M.D., Theodore E. Keats, M.D., and Jack M. Martt, M.D. Price, $7.75. Pp. 206, illustrated. Springfield, Ill.: Thomas, 1963.

Mental Mechanisms. Henry P. Laughlin, M.D. Price, $7.50. Pp. 262. Washington, D. C.: Butterworth, 1963.

Alcohol and Civilization. Edited by Salvatore Pablo Lucia, M.D., Sc.D. Price (paper), $3.95. Pp. 416. New York: McGraw-Hill, 1963.

Ciba Foundation Study Group No. 15. Pathogenesis of Leprosy. In honour of Professor V. R. Khanolkar. Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P., and Maeve O'Connor, B.A. Price, $2.95. Pp. 101, with 19 illustrations. Boston: Little, 1963.

Man and His Future. A Ciba Foundation Volume. Edited by Gordon Wolstenholme. Price, $6.00. Pp. 410, with 8 illustrations. Boston: Little, 1963.

Studies in Surgery. Dedicated to Helge B. Wulff. In Honour of His 60th Birthday, October 9th, 1963, from His Friends, Pupils and Collaborators. Pp. 260, illustrated. Malmö, Sweden: Lundgrens Söner Boktryckeri, 1963.

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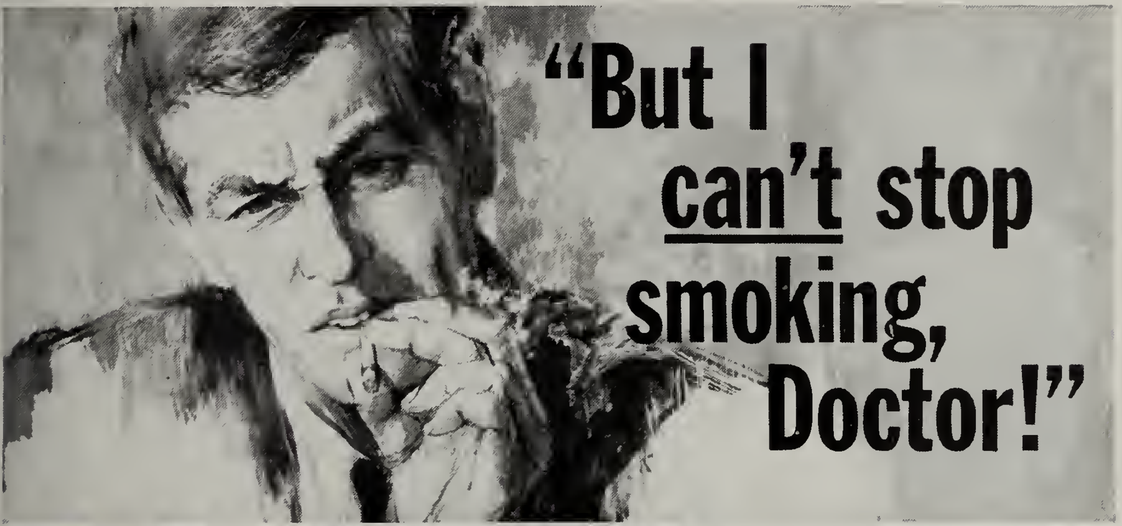

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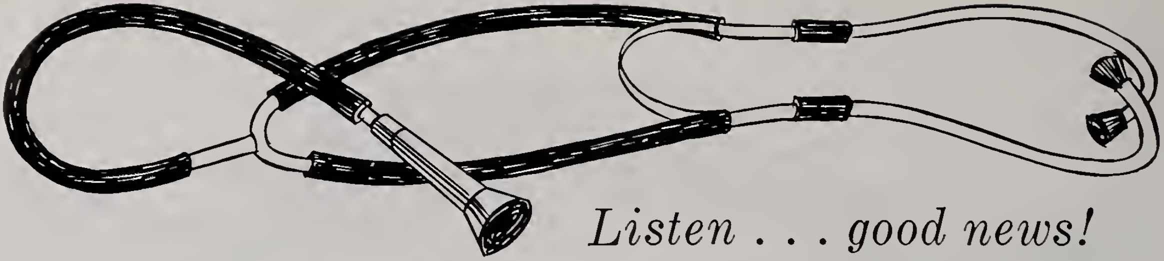

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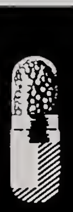

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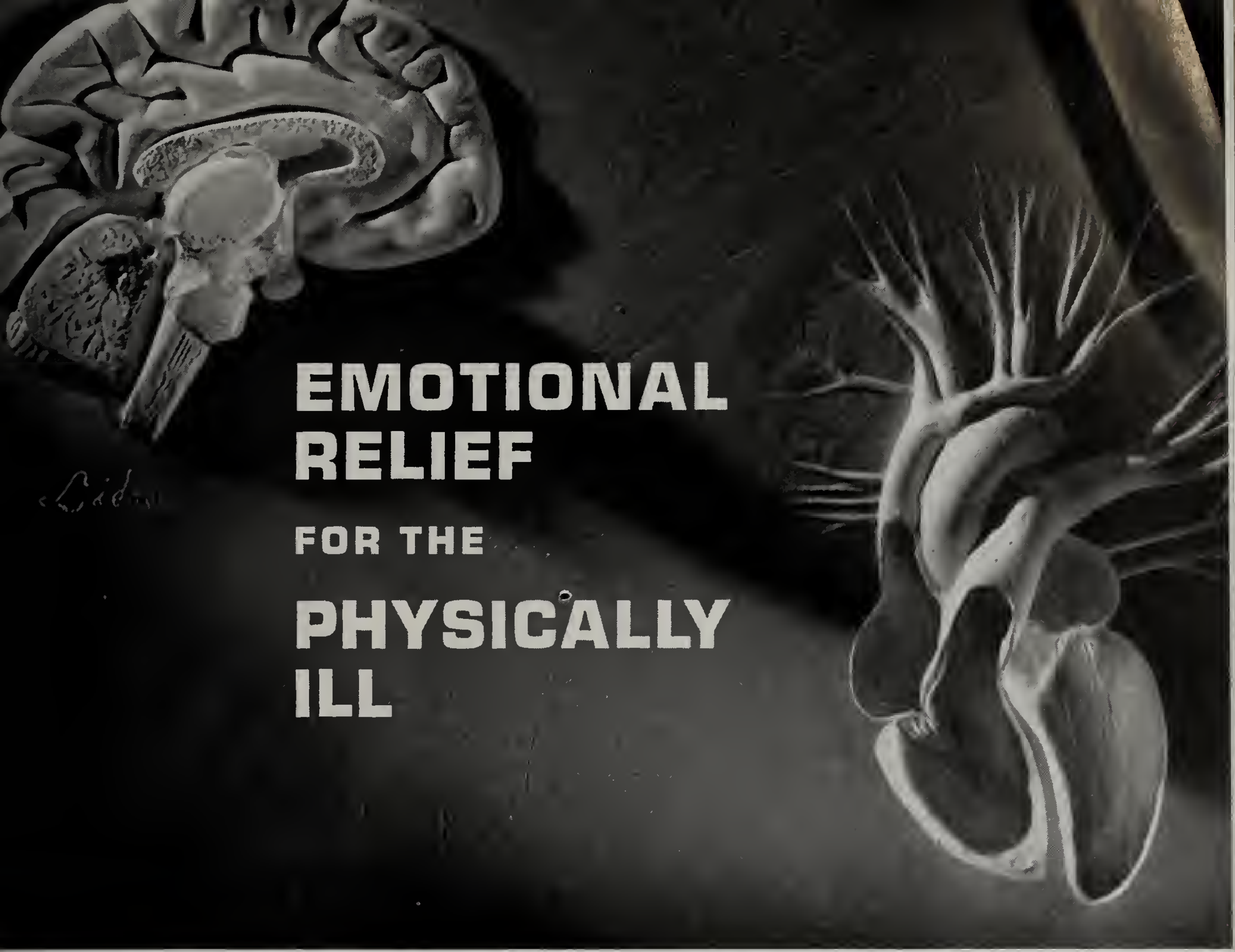

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MEDICAL ANNALS

of the District of Columbia

January 1964 VOLUME XXXIII • NUMBER 1

Variations in Ragweed Pollen Exposure of Individuals in a Metropolitan Area

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AIRBORNE RAGWEED POLLEN STUDIES have as one of their major objectives the measurement of the ragweed load of an individual patient and have generally the objective of measurement of pollen air-concentration at a fixed point. But the patient himself does not actually spend his day under the same conditions that the pollen-trapping devices of the experiments operate. The individual moves about. He travels from place to place in and about the community. He is outdoors only a small part of the day. In addition, in contrast with a fixed shelter, man creates air turbulence and causes pollen grains to fly by his movements, body temperature, and even by breathing. For this reason it becomes of interest to gain some idea of how much ragweed pollen is actually encountered by the patient under human living conditions.

In the present study petrolatum-lubricated glass slides 76 by 26 mm. were pinned on the anterior aspect of the left upper chest in the region of the left lapel on 94 individuals simultaneously.

In preliminary experiments 1 slide was placed on top of the shoulder facing upward, and another was placed facing outward vertically in front of the same shoulder. A somewhat higher count (often double) was obtained on the top of the shoulder slide. For the study herein reported the "lapel" slide was chosen as being most nearly representative of pollen exposure in the plane of the face.

The slides were held in a rectangular plastic holder of convention-badge type, 59 by 39 mm. (figure 1). A square open area 25 by 25 mm. was cut in the center of the outward facing surface of the badge. This open area was protected with coarse wire mesh, the square openings between the wires measuring 5 to 6 mm. across. The wire cages were made by cutting out the mesh in the form of a square 37 mm. to a side and bending the sides 7 to 8 mm. in from the edge at right angles to the central plane to raise it from the slide surface. The edges were then bent 2 to 3 mm. from the central portion of the wire. This latter small bend fit between the glass slide and the edge of the square hole cut in the convention-badge face and helped anchor the cage in place. Plastic tape secured the slide to the badge holder.

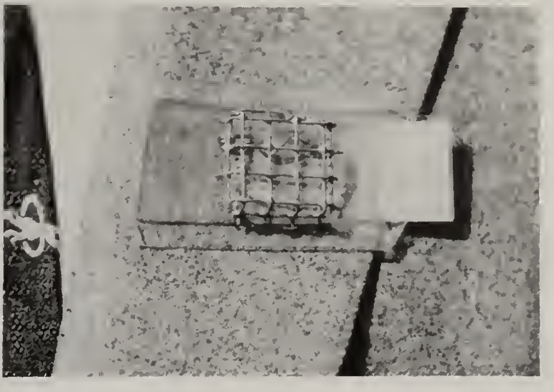

FIG. 1. Plastic holder for pollen slides.

Slides were pinned on when the subjects dressed in the morning and were exposed all on the same day for 24 hours, being placed face up on a table or bureau at night. Instructions given were: "When you get dressed Tuesday morning pin the slide to the outer clothing in front of the left shoulder (lapel area). Wear it exposed to the air all day. When you go to bed put the slide mesh-side up on a table or dresser near your bed. The next morning at the same hour the slide was first put on, place the slide in its box and cover it to stop the exposure. It will then have had 24 hours exposure to the same air you breathe."

Participants were chosen from the 4 quarters of the city. The head of the household was in almost all instances an office or laboratory worker. Less than 10 per cent were allergy patients. Thirty-four husband and wife pairs were included. Ten children aged 6 to 15 years were also included. Each subject was asked to indicate on a form how his time was spent with regard to various outdoor and indoor exposures. The slides were exposed all at the same time, on a sunny week day, pleasant in temperature, September 14, 1954. Outdoor standard-shelter ragweed counts at 3 widely separated points on this day were 73, 117, and 257 grains per 3.6 cm.^{2} area respectively.

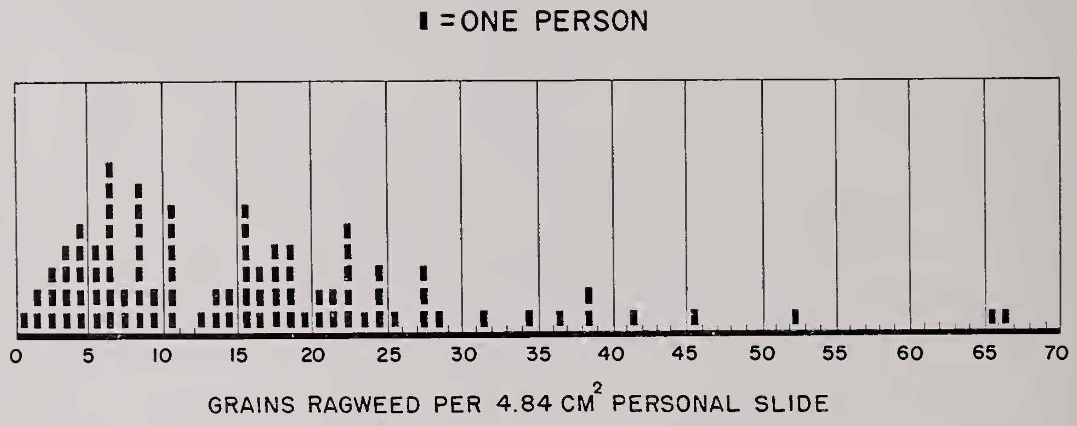

FIG. 2. Variation in individual pollen counts.

Results

The ragweed deposition on the lapel slides averaged 11.7 grains on the 3.6 cm.^{2} area, which was less than 7 per cent of the average standard outdoor catch. Since a lapel slide is not a standard shelter and one cannot calculate ragweed concentration per cubic yard of air from it, for greater accuracy the entire coverslip area of 4.84 cm.^{2} was counted, and all subsequent data will be presented on the basis of this larger area. The average ragweed deposit on the standard area for this group was 15.6 grains. The median count was 15 grains.

One of the most striking findings of this study was the great variation in ragweed catch among individuals. Counts ranged from zero to 66 (figure 2). Each dot in figure 2 represents 1 person, and the dots are arranged from left to right according to the amount of pollen on the slide. Ten per cent had counts of 4 or less. Half of the group had counts between 6 and 22. It is noteworthy that as much as 66-fold variation occurred even among people who were leading relatively sheltered lives in the same metropolitan area.

In analyzing the questionnaires, many uncontrolled variables are to be considered. An individual may lower his catch by working under air-conditioning and offset this by working in the garden. Nonetheless, by averaging the results from many persons certain trends may be noted and certain conclusions may be drawn. One of our first questions was, "Who caught more ragweed, those who stayed at home or those who were employed elsewhere?"

When the figures were broken down into 6 residential areas it was noted that in 5 of these areas those staying at home had a heavier ragweed catch than office-workers residing in the same area. This was not related to lower outdoor counts near the place of work. It appeared to be affected by the amount of time spent outdoors by the housewife or child as compared with the worker in the family. On the particular day in question housewives averaged 2.3 hours outdoors and children 4 hours, as compared with men who spent 1.1 hours and working wives who spent 1.2 hours outdoors. In the one exceptional area where the men had a higher ragweed count than their wives it was found that they spent more time outdoors than their wives.

The effect of outdoor exposure on ragweed catch for the entire group studied is shown in figure 3. The 3 bars of this illustration represent the average amount of pollen on the slides of each of 3 groups of people. The first group of 17 persons spent no time outdoors and averaged 11.3 grains of ragweed deposit. The second group includes 34 people who spent from 0.25 to 1.5 hours outside and averaged a 15.7 catch. Thirty-one subjects spent more than 1.5 hours outside and averaged 17.4 grains on their standard slide areas. So, it may be seen that time spent outdoors increases pollen deposition. The 24-hour ragweed pollen exposure was reduced about one-third, when no time was spent outside the house. A very definite disadvantage to the patient was noted when 2 hours or more were spent outside.

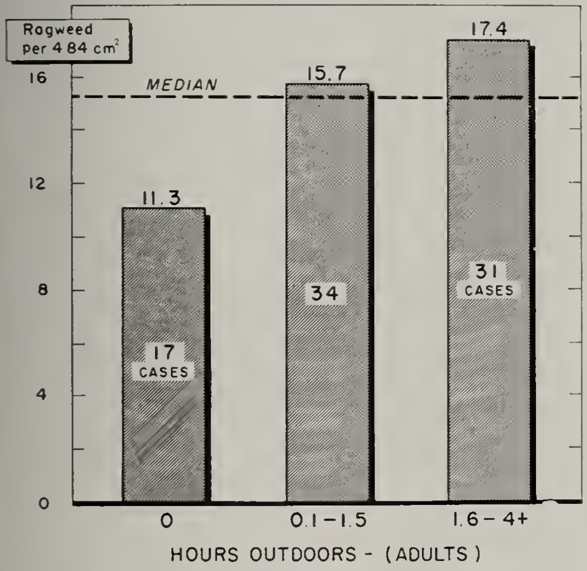

FIG. 3. Effect of time spent outdoors on ragweed exposure.

The effect of being in a room with an air-filtering unit, air-conditioner, or simply with all the windows closed was to lower the ragweed deposition. But the effects of such precautions were noticeable only after 6 or more hours were spent in this manner. Shorter stays in such a protected environment made too little difference to be detected by the technique employed (figure 4).

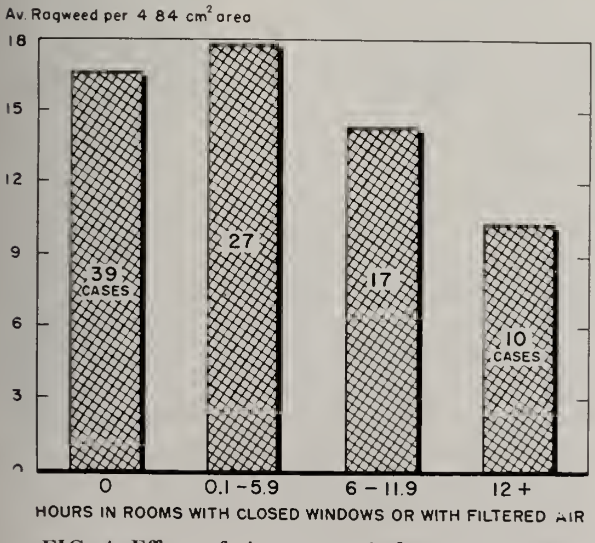

FIG. 4. Effect of time spent indoors on ragweed exposure.

It is well known that travel in an automobile tends to aggravate symptoms in the hay fever sufferer. However, travel in the city and its immediate environs for periods up to 2 hours had no demonstrable effect on personal slide counts. When more than 2 hours were spent driving there was an increase in ragweed deposition (average 20 grains for 8 persons). Where air is put in motion by a fan in pollen season, hay fever patients generally have more symptoms, but in this experiment the subjects did not show any appreciable increase in pollen load relative to number of hours spent in a room with a fan in operation.

The activities and exposures of those who had very low counts (4 or less) with those who encountered very high counts (25 or more) were compared. The protective effect of being indoors with closed windows was again evident. The high-count group had no more than average exposure to fans or in automobiles. The high-count individuals spent more time in rooms with open windows and outdoors (figure 5).

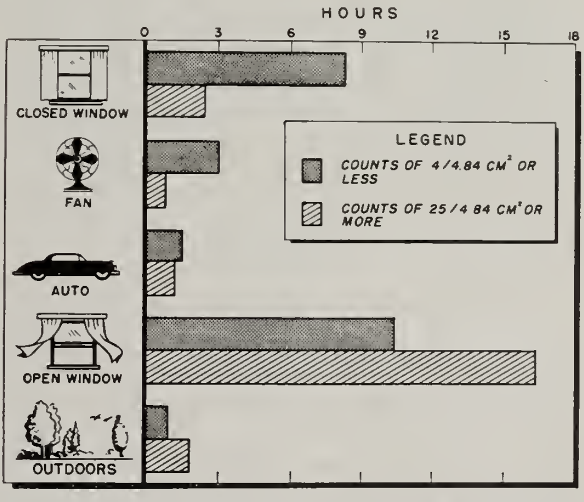

FIG. 5. Relation of extreme counts to type of air exposure.

Husbands and wives generally showed similar counts. This correlation for the 34 pairs was statistically significant at the 0.01 probability level. Table 1 and figure 6 compare the mates of individuals having an extremely low catch with the mates of persons having an extremely high catch of ragweed pollen. It appears that the marital partners of those having low ragweed catches also showed less than average ragweed counts, their average catch being 11.3 grains. Conversely, the spouses of those having unusually high ragweed deposit shared their mates' tendency to a higher than average ragweed count, averaging 25 grains. The question arises whether this coincidence pattern relates to where they lived or to their habits of living. I learned that individuals having extremely high or low counts differed from their mates in degree of outdoor exposure. Further, the spouses of these extreme individuals, both high and low, were almost identical with regard to time spent outdoors and indoors. Since the spouses' exposure patterns are alike and their ragweed catches differ, it would appear that factors which are affecting airborne ragweed pollen concentration in or about the home itself might be important.

TABLE 1. Comparison of Low-count and High-count Individuals and Their Spouses

	Average Pollen Count	Hours in Rooms with Closed Windows or Filtered Air	Hours in Rooms with Open Windows	Hours Outside or in Automobile
13 persons with low count*	2.9	7.8	13.9	2.3
10 spouses of persons with low count	11.3	5.0	16.3	2.7
All persons	15.6	3.8	16.9	3.1
12 persons with high count†	40.4	2.5	18.6	2.8
8 spouses of persons with high count	25.0	4.8	16.6	2.6

* Includes counts of 4 or under

† Includes counts of 25 or more

There is further evidence that stationary ragweed counts vary greatly even within a particular house. On 9 days 24-hour exposures were made simultaneously in a number of sites within a single home. The counts per 4.84 cm.^{2} area on a typical day ran 144 outside in a standard shelter in the south yard of the house in question. Counts in the house in rooms with open windows ranged from 8 to 177, being higher in rooms facing the prevailing breeze. Ragweed counts within a room varied also, rising as the slides were placed near open windows and falling when slides were placed away from the main flow of air. Thus it appears that highly local conditions, even those within a home, are instrumental in accounting for the coincidence of low or high counts encountered by marital partners and help to explain why individuals from different homes vary as much as they do in their ragweed loads.

Discussion

The magnitude of the ragweed catch was far smaller than we anticipated. However, until further work is done correlating the exposure device used with other measures of pollen air-concentrations it would be premature to speculate on the clinical implications of the low catch obtained.

The standard shelter slides caught from 7 to 22 times more pollen than the average deposit on personal slides and were thus a more sensitive index of pollen in outdoor air. Of course, when there is no pollen in the air all personal catches of ragweed pollen will be zero. It is reasonable to suppose that when the counts are low many personal slides will show no pollen, on a chance basis. As the counts rise, the likelihood of encountering ragweed grains increases and the population as a group should show higher personal catches. However, the assessment of degree of clinical sensitiveness of a person by relating the standard shelter counts to the point at which his clinical symptoms begin is subject to gross error because the individual pollen load may vary so widely. It is not surprising that Guerney and Cryst[1] were unable to correlate their diurnal ragweed peaks with patients' symptoms.

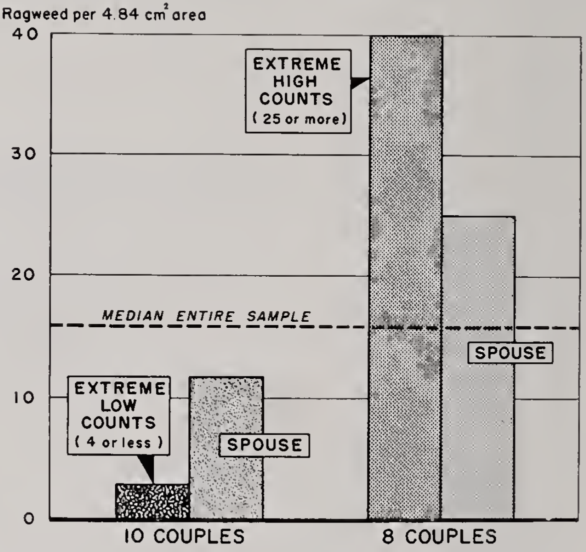

FIG. 6. Home environment as a factor in ragweed exposure.

It must be further borne in mind that when a patient is having an undue amount of hay fever his personal pollen load may be unusual and should be ascertained. This is particularly important inasmuch as in many cases it should be possible to alter an individual's pollen load very substantially by attention to his home environment.

Personal slides should also prove valuable in the qualitative analysis of mold and pollen exposure in certain problem cases of hay fever. A wide variety of pollen grains and mold spores were found on the personal slides, some being a decided surprise. Certain slides had heavy mold-spore deposits. Hundreds of stemphillium, Fusarium, or aspergillus-type spores were occasionally found. These sometimes appeared in large numbers on 1 individual's slide and were absent or present only in small numbers on the slides of other members of the same family.

The failure to demonstrate increased pollen catch in individuals exposed to increased air movement in pollen season presents a challenge. Numerous pollen impingement studies have been carried out and are in agreement that a slide held facing a current of pollen-laden air will catch more pollen than a slide in still air or a slide not directed to face the direction of the air current.[2-5] Again, it is necessary to realize that people are not fixed slides. Evidently, people do not face into the breeze of a fan a sufficient proportion of the time to acquire increased ragweed deposition in the plane of their faces. Clinically there is no question that a short time of exposure either to automobile travel or to fans in pollen season wreaks havoc with the hay fever sufferer. Commonly he is worse within a few minutes of such exposure. There was an absence of evidence that an individual's pollen load was increased substantially under these conditions. Emphasis, then, must be given to the importance of the aggravation of hay fever symptoms by nonspecific factors involved in air movement, such as temperature change, or the effect of contrasting temperature on different parts of the skin or to allergic or mechanical irritation from dusts. It is presumed that one of the physiologic functions of the nasal mucosa is to warm inhaled air. That temperature per se is of clinical importance is substantiated by the experience of Bernton.[6]

The similarity of ragweed catch found in marital partners points to the importance of local pollen concentrations in and about the residence in determining individual pollen load. The dissimilarity of ragweed catch in the otherwise comparable spouses of persons having extremely high or low catches leads to this same conclusion. This study confirms the observation made by Durham[4] that the absolute pollen frequency of the air differs widely in various parts of a city. Local growth of ragweed plants, prevailing winds at the place of residence, location of the home on a hill or in a valley, position of the most lived-in rooms of the house with relation to prevailing breezes, and even placement of furniture in the home may be factors in determining an individual's load. It is of practical importance to realize the non-homogeneity of pollen distribution in a city or in a home, since a simple furniture relocation or a move within a city may well prove advantageous to an individual patient.

Summary

A technique has been described for comparing the pollen catch of individual persons.

A 66-fold variation was found on a single day among a metropolitan group in Washington, D. C. Two or more hours spent outdoors was necessary before an appreciable change was noted in the 24-hour ragweed deposit on personal slides. Counts decreased as more time was spent indoors in air-filtered rooms or in rooms with closed windows, the effect becoming detectable after 6 hours.

Exposure to fans and urban auto travel of 2 hours' duration did not affect pollen deposition to the point where it could be measured, although air movement is undoubtedly important clinically in aggravating hay fever symptoms.

There was a significant correlation between the counts of husbands and wives irrespective of their exposure to outdoor air. It is suggested that local conditions, including variations in pollen concentration within a home, contribute greatly to the coincidence of high or low counts found in marital partners.

The personal slide technique described is applicable to qualitative as well as quantitative analysis of an individual's pollen or mold exposure.

Individual pollen load is not necessarily proportional to standard shelter outdoor pollen counts.

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The Chronic Form of Subdural Hematoma: Diagnostic Aspects

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ALTHOUGH NOT AN UNCOMMON OCCURRENCE in clinics dealing with trauma, the subdural hematoma is frequently a major diagnostic problem. In particular, the chronic form of this entity, presenting as it does the symptoms of gradually increasing intracranial pressure, is notorious in mimicking other lesions of the brain with manifestations which include the gamut of the abnormal neurologic examination. Since the results of surgical treatment are generally good, it is in the diagnosis of this lesion or, more pertinently, in the suspicion of the diagnosis, that large benefits are to be gained. These considerations have led to the present attempt to itemize certain factors in the history, symptoms, and results of examination present in a consecutive series of patients under care for the chronic type of subdural hematoma.

The grouping of subdural hematoma into categories of acute, subacute, and chronic is arbitrary, although there is general agreement that this classification is, in part, a division of the physiologic time-spectrum extending from the initial bleeding episode, through the formation of a solid clot, its subsequent hemolysis, and to that relatively rare state in which the hematoma is actually calcified.[1-4] As applied here the designation of "chronic" is based on the finding at operation of a liquid hemolysate between the dural and pial membranes. Patients harboring a partially liquefied hematoma containing clots fall into the separate category of subacute and are not included. It is to be noted that no emphasis is placed on the date of the precipitating incident; in only 47 per cent of the cases studied was such information obtainable. Indeed, the date of the inciting incident was not available from any of the patients who died. Unreliability of such data, e.g., time of onset, was exemplified by at least 2 patients, each of whom had a history of severe head injury sustained 2 days prior to surgery; in each case, an encapsulated, chronic subdural hematoma was found which obviously antedated the more recent trauma. Since a clear definition based on a time scale has not been possible,[2-4] the finding of a liquid hemolysate is adopted here as synonymous with the chronic form; the reservation is included that solid, encapsulated lesions of long standing are known to occur,[5] although such a case was not encountered in this series.

Material

A consecutive series of 115 adults who underwent surgery for all forms of subdural hematoma within a 4-year period (1958–1961) at the District of Columbia General Hospital was used as the population which provided a group of 66 patients with the chronic form of subdural hematoma. Selection was based solely on the presence of a liquefied hematoma uncomplicated by other forms of intracranial hemorrhage, i.e., substantial intracerebral or epidural bleeding. The ages ranged from 25 to 88 years, with 76 per cent of the group in the fourth through the sixth decade of life (table 1). There were 38 males and 28 females.

TABLE 1. Age and Mortality of Patients

Decade of Life	3	4	5	6	7	8	9
Recovered	3	14	18	15	8	0	1
Died	0	0	2	2	1	1	1

The past history included epilepsy in 8 (2)* and chronic alcoholism in 36 (3), of whom 7 (1) presented a history of both. When examined by the admitting physician the diagnosis of subdural hematoma was not included in the differential diagnosis of 36 per cent, and the following diagnoses were offered: brain tumor, 3 (0); cerebrovascular thrombosis or hemorrhage, 6 (2); a psychiatric diagnosis including alcoholism, 11 (0); epilepsy

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* Number in parentheses is the number of patients who died.

2 (0); hypertensive cerebrovascular disease, 1 (1); and basilar skull fracture, 1 (0).

Findings

Comparison is presented in table 2 of the symptoms and signs as grouped into 3 categories: (1) all surviving patients, (2) those in whom the inciting incident is thought to have occurred 3 or more weeks prior to surgery, and (3) the 7 patients who died. It is evident that no unusual features exist to differentiate those patients with a known history dating 3 weeks prior to surgery from the entire group who had a liquid subdural hematoma.

TABLE 2. Findings Prior to Surgery

Findings	Total Living, 59	20-Day History, 19	Dead, 7
History of trauma	39	19	2
Personality changes	15	3	1
Fluctuating consciousness	30	8	2
Skull fracture	7	2	1
Laceration about head	14	5	1
Pineal shift	7	3	0
Headache	27	11	1
Convulsions	15	3	4
Nuchal rigidity	17	4	1
Incontinence	4	2	1
Hemiparesis	26	12	2
Inequality of pupils	22	5	0
Facial paresis	14	7	1
Papilledema	11	2	0
Positive Babinski	30	15	4
CSF: sanguinous	4	1	3
CSF: xanthochromic	22	4	4

Sensorium. The most constant finding is that associated with the patient's state of consciousness and, in particular, changes in such a state; 89 per cent of the group presented evidence of an alteration in sensorium. The complaint of headache, noted as occurring in only 42 per cent, is in reality much more common, since in many of these individuals the sensorium was dulled and questioning was ineffective.

Trauma. Evidence of head injury was observed or a history of trauma obtained in 67 per cent. The association between trauma and subdural hematoma is well established[6] and serves to draw attention to this diagnosis even though it is obvious that any disorder causing a state of unconsciousness may lead to a head injury; such adverse effects of injury on preëxistent but unrelated cerebral lesions have received comment.[7]

Other symptoms and signs. Some of the usual symptoms and signs associated with expanding intracranial lesions are infrequent or may be misleading when applied to the chronic subdural hematoma (table 3). More common are convulsive episodes and nuchal rigidity, each of which occurred in one-quarter of this population. The usual localizing signs are of little value in determining the site of hematoma, as documented in table 3. One patient exhibited decerebrate rigidity, and 2 had absent corneal reflexes; all 3 survived. High blood pressure is not uncommon and has led to the suspicion of hypertensive cerebrovascular disease. The differential diagnosis here is based, in part, on the pulse, which, in the presence of high intracranial pressure, is sometimes slowed while the blood pressure rises; with subdural hematoma the hypertensive type of retinopathy will generally be absent.

TABLE 3. "Localizing" Signs in Relation to Anatomic Site of Lesion

Clinical Findings	Site of Lesion		
	Left, 35 (4)*	Right, 25 (2)	Bilateral, 6 (1)
Hemiparesis			
right	4	3	1
left	11	8	1
Dilated pupil			
right	5	5	1
left	10	0	1
Facial paresis			
right	2	3	2
left	3	5	0
Papilledema			
right	1	2	1
left	1	0	1
bilateral	5	0	0
Positive Babinski			
right	2	1	2
left	8	5	0
bilateral	7	8	1

* Number in parentheses is the number of patients who died.

Diagnostic Procedures

Lumbar puncture. Cerebrospinal fluid examination, performed in 67 per cent of the cases, is of help when xanthochromic CSF is obtained. Xanthochromia was present in 59 per cent of those undergoing lumbar puncture; when present, it served as a direct indication for cerebral arteriography. Twelve patients displayed a somewhat elevated spinal fluid pressure, i.e., above 200 mm. of water. I have therefore tended to minimize the finding of normal CSF pressure as a basis for the absence of a subdural hematoma.

Electroencephalography. EEG recordings were obtained in only 2 patients and were interpreted as normal in each. Because of the frequently critical condition of the patient, the tendency has been to perform the more definitive evaluation procedures, although it is recognized that electroencephalographic abnormalities are not infrequent.[8]

Radiologic studies. Skull roentgenograms revealed 8 patients with linear skull fractures, 1 of whom died. This point is noted only to stress the lack of correlation between violence to the calvarium and trauma to the brain itself. A calcified pineal gland was found in 7 patients. In 2 of these, both with a unilateral hematoma, the position of the pineal was within normal limits, indicating the limited diagnostic value of the finding of a midline, calcified gland. As expected, the pineal was also in the midline in 1 patient with bilateral lesions.

The results of carotid arteriography[9] have been excellent in this series; the lesion has been visualized in every patient subject to this procedure, which was performed in 77 per cent of the cases. In a unilateral hematoma an avascular area tangential to the calvarium is seen with concomitant displacement of the anterior cerebral artery toward the opposite side. In the presence of bilateral lesions the avascularity is noted on both sides but without lateral displacement of the anterior cerebral artery. The only contraindication for arteriography has been the patient's condition which precluded any but emergency treatment, in which case diagnostic burr holes are performed.

Prognosis. No single preoperative finding appears to be of prognostic significance except, perhaps, the state of consciousness[4, 10] at the time of surgery. Comparison of mortality figures for this series with those of comparably large American hospitals where recent data are available includes the following values for chronic and for all forms of subdural hematoma, respectively: Bellevue Medical Center,[4] 25 per cent and 39 per cent; Cook County Hospital,[11] 23 per cent and 42 per cent; Grace and Detroit Memorial Hospitals,[12] 11 per cent and 26 per cent; this series, 11 per cent and 26 per cent.

Discussion

The composite picture of a case of liquefied subdural hematoma is one of trauma followed by days or weeks of relatively normal behavior. Headaches are common during this period, but few if any dramatic symptoms appear. Gradually the patient's family may notice "moodiness" and forgetfulness with a tendency toward sleeping for longer periods and at inappropriate moments. As more serious symptoms arise the patient is hospitalized because of an abnormal neurologic examination. The neurologic manifestations which can be elicited include all of those relating to increased intracranial pressure; they are unreliable in indicating the site of the lesion. The above pattern may be taken as an indication for cerebral arteriography.

It is evident that a history of trauma is not inconsistent with the presence of brain tumor or of cerebrovascular hemorrhage or thrombosis. In many of these instances the diagnosis can be arrived at only by arteriography or exploratory burr holes; the former is preferred if the patient's condition allows. Parenthetically, it is not rare to find a subdural hematoma as the result of bleeding from an aneurysm or arteriovenous malformation[13]; not included in this series are 4 such cases which were recognized by angiography thereby allowing proper treatment of the underlying lesion.

A previous report from this hospital[14] covered 108 patients who underwent surgery for all 3 forms of subdural hematoma during the 10-year period prior to 1955; 4 patients had the benefit of cerebral arteriography. During the 4-year period under discussion, 1958–62, in which the above criteria and diagnostic methods were applied, 115 patients have been operated on for all forms of subdural hematoma. Since there has been no major change in the number of hospital admissions, it is believed that the increase reflects the more frequent utilization of cerebral arteriography as a diagnostic tool.

Summary

A retrospective study is presented dealing with our experience with 64 patients having a confirmed diagnosis of the chronic form of subdural hematoma. Particular stress is placed on the diagnostic aspect of this entity. A history of trauma, changes in sensorium, and progressive appearance of abnormal neurologic findings serve as a strong indication for this diagnosis. Localizing signs are fallible. Since a definitive diagnostic procedure, i.e., cerebral arteriography, is available, a suspicion of the presence of subdural hematoma will lead to confirmation of the diagnosis.

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The Microangiopathy of Diabetes*†

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IT HAS LONG BEEN WIDELY ACCEPTED that the degenerative phenomena associated with diabetes mellitus are the direct complications of poor diabetic control. Retinopathy, neuropathy, nephropathy, and obliterative arterial disease of the extremities have been thought of as the "penalty" for the failure of the physician, or of the patient, to maintain a near normal blood sugar and a minimum of glycosuria. During the past several years a number of reports have emphasized that the so-called complications of diabetes may be present shortly after recognition of the diabetes, or, indeed, before any overt abnormality of the blood glucose can be identified. Retinopathy, nodular glomerulosclerosis, maternal and fetal complications of pregnancy, and neuropathic disturbances may all occur before diabetes has been evident or even before it can be proven by glucose tolerance testing. These observations favor an evolving concept of a generalized pathologic and pathophysiologic disorder which is a fundamental part of diabetes and not simply a number of separate complications.

Anatomically, as will be described in detail, typical vascular and basement-membrane changes have been described in early diabetes and prediabetes (and even in "nondiabetic" members of the families of diabetics), involving the kidney, conjunctiva, skin, placenta, pancreas, nerve tissue, and myocardium. Numerous and extensive studies of the pathologic and pathophysiologic involvement of the retina suggest that it also appears to represent part of a generalized vascular process, although a primarily vascular basis for the retinal changes is not entirely accepted.

Disorders of Vascular Function

Functional disturbances of the microvasculature of diabetics have been postulated and studied for some time prior to the more recent demonstration of specific anatomic changes. Many studies, using various physiologic techniques, have demonstrated impaired responses of the superficial smaller blood vessels of diabetics who have no evidence of disease of large vessels. Impaired wheal response to intracutaneous histamine,[1] subnormal temperature elevation of the skin of the toes following intravenous tolazoline hydrochloride[2] or following sympathetic blockade,[3] and diminished vasodilator responses with nitroglycerin[4] occur in significantly high percentages of diabetic groups tested.

Lax and Feinberg,[5] employing a new finger-cuff technique, observed abnormal arterial pulse waves in 62 per cent of young diabetics tested, none of whom showed clinical evidences of vascular disease. Only 8 per cent of nondiabetic subjects of the same age groups but 30 per cent of 40 subjects with a positive family history of diabetes were found to have abnormal arterial pulse-wave configurations.

The bulbar conjunctiva has been utilized as an area in which the living microcirculation could be observed directly.[6, 7, 8] The most consistent findings in diabetics are elongation of the venous portion of the capillaries, distention of the venules and aggregation of the blood cells, and a concomitant reduction of blood flow.

Anatomic Vascular Changes

On microscopic examination the presence of a small-vessel disorder, typical or almost specific for diabetes, has been described by a number of investigators, using both light and electron microscopic techniques.

Goldenberg et al[9] studied the small vessels of amputated legs of diabetics. They described a "diabetic" lesion which could be distinguished in the small arteries (digital or smaller). This was characterized by a marked endothelial cellular proliferation with narrowing or almost complete occlusion of the lumen.

Staining with the periodic acid-Schiff (PAS) method, which stains glycoproteins and mucopolysaccharides, showed certain important characteristics. A reticulated pattern of PAS-staining (but colloidal iron-nonstaining) fibrillae between the endothelial cells and parallel bands through the media were noted. In the diabetic vessels the internal elastic lamellae often stained solidly with the PAS stain. At the capillary and arteriolar levels the fibrils formed concentric rings which were similarly PAS-positive and colloidal iron-negative, often progressing to form solid hyaline masses of similar staining characteristics. Enlarged endothelial cells, lining the lumen and in the spaces between the fibrils, were also found.

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* Abridged thesis, prepared in partial fulfillment of the requirements for advancement to fellowship in the American College of Physicians.

† Offered as part of the Sibley Memorial Hospital Number of the MEDICAL ANNALS for February, 1964.

In sections of the kidneys of diabetics the glomerular lesions showed the same staining characteristics as the previously described arteriolar-capillary lesions. Further, among the diabetics the typical vascular lesion was found in the vasa vasorum, the dermal vessels, the muscular vessels, and the vasa nervorum (where it was seen in 90 per cent of the patients with clinical neuropathy).

Handelsman, Morrione, and Ghitman,[10] studying punch biopsies of the skin of the forearm stained with the periodic acid-Schiff technique, noted a readily recognizable thickening of the walls of the small blood vessels by the accumulation of an intensely positive PAS-staining substance, as well as endothelial proliferation. These changes were seen in all of 6 diabetics with neuropathy and retinopathy and in 8 of 12 diabetics with diabetes of relatively recent onset with no vascular complications.

Aagenaes and Moe[11] studied the capillaries from the pulp of the fingers and toes of diabetics, using both light and electron-microscopic techniques. Periendothelial deposits of PAS-positive material were found in many of the capillaries from diabetic subjects, most marked among patients with the onset of diabetes before the age of 40 and evidencing nephropathy and retinopathy. Electron microscopy revealed a thickening of the capillary basement membrane, described as closely comparable to the glomerular capillary lesions observed with the electron microscope by other investigators.[12, 13]

Electron microscopy showed characteristic abnormalities in patients with diabetes of acute and recent onset, showing no evidence of nephropathy clinically or by conventional microscopy.[14] All subjects examined showed thickening of the glomerular capillary basement membrane, the basement membrane of Bowman's capsule, and the basement membrane of the renal tubules.

The widespread nature of the microvasculopathy is evident from its description, as already mentioned, in skin, muscle,[15] nerve tissue, vasa vasorum, retina, and kidney. In addition, the microvasculatures of the placenta,[16] liver,[17] and myocardium[18] have been described as demonstrating similar changes.

Nephropathy

The histologic picture of glomerular hyalinization was described as long as 40 years ago. Kimmelstiel and Wilson[19] in their classic treatise identified the disease of "intercapillary glomerulosclerosis" in detail and described the syndrome of proteinuria, nephrotic edema, and hypertension in those with diabetes of long standing. Although there remains some dispute as to the specificity of the renal lesions for diabetes, it is fairly widely accepted that the diffuse form of glomerulosclerosis and the so-called "exudative" form occur in a high percentage of diabetic patients. The nodular lesion is considered by many to be specific and by some even pathognomonic for diabetes. Light microscopic[20] and electron microscopic[14] studies of the glomeruli in young diabetic patients showed, as a constant finding, a thickening of the capillary basement membrane, with the average thickness being 2 to 3 times the normal thickness. Areas of focal thickening were present in some glomeruli which were considered as possible forerunners of the K-W nodule. The basement membrane of Bowman's capsule in the diabetic subjects measured 10 times thicker than in normal subjects, with occasional bulging into large nodular masses of hyaline basement-membrane-like material. Likewise, marked thickening of the basement membrane of both proximal and distal convoluted tubules was seen.

In the glomerulus the thickening capillary basement membrane branches inward, the proliferating branches causing diffuse glomerulosclerosis and by further proliferation the nodular lesions.[21]

Neuropathy

The role of arterial narrowing in the production of neuropathy has long been appreciated.[22] We again find evidence that the fundamental underlying lesion may be the endothelial cellular hyperplasia and PAS-staining thickening of the intraneural and perineural arterioles.[23, 24] While the role of the arterial disease remains disputed, especially in view of the responsiveness of some of the nerve lesions to adequate control of the diabetes,[25] it is convincingly argued that the nutrient arteriolar occlusion may cause an ischemic lesion which is compatible with repair and recovery.[26]

Diabetic Retinopathy

Since the advent of the insulin era there has been a marked and continuing increase in the survival of diabetic patients with a resulting increase in the long-term "complications" of diabetes.[27] Perhaps the most distressing among these is diabetic retinopathy, which now represents a leading cause of incidence of new cases of blindness in this country. At present there is no clear-cut explanation as to its cause and no effective therapy.

The retinal microaneurysm first described by Nettleship[28] in 1889 is established as the characteristic lesion of diabetic retinopathy.[29] Although the microaneurysm itself is not confined to diabetes, its preponderance in the posterior pole of the retina is more likely to be seen in diabetes than in any other condition (with the possible exception of central-vein occlusion). Numerous mechanisms of formation of the microaneurysm have been suggested. Venous dilatation of the branches of the retinal vein appears to precede the formation of the microaneurysms.[30]

A loss of capillary endothelium with resultant focal weakening of the wall and subsequent ectasia was postulated by Ballantyne.[30] Wise[31] proposed a mechanism of relative anoxia, resultant from circulatory stasis secondary to venous obstruction. Ashton[32, 33] emphasized the presence of peculiar bridge-like intervascular fibrous strands in the human retina. He theorized that increased retinal turgescence creates a mechanical pull of these fibrous strands, which traction produces vascular kinking and subsequent microaneurysm formation.

The increased number of the intervascular fibrous strands seen in diabetic retinopathy led Wolter[34] to the conclusion that the strands and the microaneurysms represent a phase of an averted attempt at neovascularization.

Cogan, Toussaint and Kuwabara,[35] using their new trypsin digestion technique, noted the presence of "mural" cells in the substance of the wall of the normal retinal capillary and the selective loss of those mural cells in diabetes. The microaneurysms were observed to arise from capillaries which had lost their mural cells but in which the endothelial cells were normal or hyperplastic. They bordered on, and were oriented toward, areas where the retinal capillaries had become completely acellular and were probably occluded, containing no erythrocytes. The wall of the microaneurysm, at first thin, becomes thickened by endothelial proliferation and subsequent heavy thickening of the basement membrane with a concentrically laminated PAS-staining substance. Bloodworth[36] found that this thickening is caused by a deposition of layers of hyaline material within the aneurysm, the thin basement membrane remaining identifiable. The end-result of this thickening is an occlusion of the microaneurysm, leaving a solid sphere or cord of PAS-staining material.

Cogan, Toussaint and Kuwabara[35] also described cylindrical enlargements of capillaries, arterioles and venules, which they designated as "ensheathing." Similar to the microaneurysms these areas showed loss of mural cells, endothelial-cell proliferation, and basement-membrane thickening. Cogan and Kuwabara[37] postulated that the loss of mural cells removes the tonic control, causing capillary distention, with resultant by-passing and ischemia of adjacent capillaries.

Wolter[38] noted changes in the nerve fibers around the small blood vessels and microaneurysms and pointed out that these changes are the only single histologic finding in diabetic retinopathy not noted in other retinal diseases.

Degenerative changes in the neurons and glia, with loss of many of the neurons of the inner plexiform and ganglion-cell layers, appeared to Bloodworth to be independent of the vascular changes. He thought that his findings supported Wolter's concept that swelling and degeneration of the retinal neurons are the first changes to occur in diabetic retinopathy. The neuronal degeneration was interpreted as the direct reason for loss of vision associated with diabetic retinopathy.

Large-vessel Atherosclerosis

It is well recognized that there is a distinct increase in the incidence of atherosclerosis of the medium and larger vessels associated with diabetes. This may be in part related to the altered hemodynamics created by the microangiopathy[4] and in part a result of the grossly altered lipid metabolism which is associated with diabetes. In any case, it does not differ qualitatively, as far as has been recognized, from atherosclerosis in the nondiabetic, and is not in itself pertinent to the present discussion of the entity of diabetic microangiopathy.

Mechanisms of Development of Microangiopathy

With the recognition that a specific microangiopathy may exist in human diabetes there has been aroused a great deal of speculation as to its mechanism of production and its significance. The prevalence of PAS-positive material in association with the microvascular lesion has been emphasized. This is accepted as indicating a concentration of carbohydrate, either as mucopolysaccharide or glycoprotein. There is an elevation of circulating hexosamine in diabetes, although this does not increase the blood viscosity and is no greater in diabetics with retinopathy than without retinopathy.[39] Speidel and Lazarow[40] have recently reported the results of their analysis of the chemical composition of the glomerular basement-membrane material in diabetics with nodular glomerulosclerosis as compared with nondiabetics. Although the quantity of basement-membrane material was greater in the diabetic its chemical composition was essentially the same as in the nondiabetic, namely, a glycolipoprotein, with amino-acid distribution and hydrolysis by collagenase identifying it as collagen. Using normal and alloxan diabetic rats, Lazarow showed a poor turnover of tritiated proline in the basement-membrane substance.

Lesions resembling retinal microaneurysms in alloxanized rabbits treated with ACTH were noted by Becker,[41] but these findings have not been reproduced in subsequent attempts by others.[42] Levene[43] reported some thickening and hyalinization of the arteriolar wall and increased PAS-staining of the arterioles and capillaries in the retinae of partially pancreatectomized rats. Housler[44] noted in the retina of a dog following 10 years of growth hormone-induced diabetes a few aneurysms, some hemorrhages, and endothelial-cell proliferation.

In spontaneous diabetes in a dog[45] retinal changes included loss of mural cells, aneurysms with marked endothelial cell-proliferation, and retinal exudates.

Glomerular lesions resembling those of glomerulosclerosis in man have been produced by cortisone administration in rabbits,[46] the lesions being more readily induced following alloxan-induction of diabetes.[41] The effect of the cortisone is believed by some to be a function of the hyperlipemic effects of the cortisone,[32, 47] and to be preventable by the administration of heparin. Bloodworth and Hamwi[48] thought that the cortisone-produced lesions more closely resemble the exudative glomerular lesions than the nodular "K-W" type lesions.

The role of the pituitary and adrenal in the development of retinal and renal capillary disease in human diabetes demands careful consideration. It has been reported that the adrenal glands from patients with the K-W lesion are adenomatous, larger, and show increased cortical-cell vacuolization. Moreover, the spontaneous loss of pituitary function,[49, 50] as well as therapeutic ablation of the pituitary[51] or adrenals[52] may be followed by varying degrees of regression or retardation of the renal and/or retinal vascular disease.[53]

A study of adrenal function as measured by response to ACTH infusion, comparing diabetic patients with and without small vessel disease, showed no essential difference.[54]

Blumenthal[55] observed that the nodular glomerular lesions in diabetic patients bind fluorescein-labeled insulin and also labeled anti-insulin serum, suggesting that the lesions contain an insulin-anti-insulin complex. These binding capacities were seen in the nodular lesions, the tubular basement membrane, and the fibrillar material of the proliferative vascular lesions, the same structures which are strongly PAS-positive. Becker[56] confirmed the presence of gamma globulin in the kidney lesion and also found it in the retinal capillary lesion. This raises the possibility of an antigen-antibody reaction at the basement membrane as a concomitant (or possibly a forerunner) of the pathologic lesion in the diabetic capillary.

The alteration of serum proteins noted in human diabetes,[57] with elevation of alpha-2 and beta-2 globulin, and the elevated alpha-2 serum proteins observed in diabetic Chinese hamsters[58] are intriguing observations conceivably relating to the pathogenesis of the lesion.

A fundamental consideration is the problem of whether the angiopathy is cause, effect, or simply a concomitant of the diabetes. The finding of typical diabetic vascular changes in the retina and kidney[59] of prediabetics, i.e., relatives of diabetics in whom no abnormality of glucose tolerance can be shown, is weighty evidence against these vascular changes being a result of disturbed carbohydrate metabolism. Similarly, the observation that in the diabetes accompanying hemochromatosis there is no[60] or, as observed by others, a reduced[61] incidence of angiopathy, weighs against a disturbance of glucose metabolism as being the factor initiating the vascular disease. If this is the case one must infer that the adequacy of control of the carbohydrate metabolic aspects of the diabetes would not influence the incidence or severity of the microvascular disease.

Weighing on the opposite side of this question has been the finding of vascular changes in some experimentally induced diabetes and the diabetes following pancreatectomy in man.[62] While there are no conclusive statistics, it is difficult to dismiss the reports of an increased incidence and severity of nephropathy and retinopathy in diabetic patients in whom the control of the diabetes has been poor.[63] Marble[64] is a forceful proponent of the role of rigid control in allaying or postponing vascular disease. In his laboratory Rees et al[65] have studied the microcirculation in the bulbar conjunctiva, retina, and ear lobe. They point to a reversal of venular dilatation even in 3 to 9 hours after bringing about good control of the diabetes and attribute the demonstrable improvement following pituitary stalk section to increased insulin sensitivity. Fry[25] described the occurrence of diabetic neuropathy, especially with isolated nerve lesions, during periods of inadequate control and the responsiveness to good diabetic control.

Theoretic Conclusions

Reflecting on the various contributions of evidence from the many observations referred to, the desk-top researcher can make several logical deductions:

1. The basic entity of diabetes includes more than an impairment of glucose metabolism as measured by presently used tests.
2. Even before glucose metabolism is measurably deranged, seemingly specific alterations occur in the arterioles, venules, and capillaries.
3. These vascular changes have been most frequently noted in the retinal and renal vasculature, but this may be only because of the ready accessibility of these tissues to direct examination or functional study. The basement-membrane changes are probably widespread throughout the body.
4. These vascular changes may result from one or several chemical disorders which themselves comprise the fundamental derangement of the diabetic.
5. The basic derangement in diabetes may be a disturbance of endothelial and or basement-membrane structure, to which the chemical disorders and relative insulin need are secondary.
6. Two separate, related or unrelated, defects may be inherited by the diabetic—one an anatomic vascular fault and the second the biochemical disorder (whatever it may be) which we have traditionally labeled diabetes.
7. An antigen-antibody, insulin-anti-insulin reaction may be involved, causally to one or both, or purely coincidentally.

Many fundamental questions remain to be answered, in addition to a definition of the "natural history" of diabetic microangiopathy. What is the role of heredity? Is there a different genetic predisposition in the diabetic with significant and progressive vasculopathy as compared with the diabetic whose angiopathy remains inconsequential? How can we explain the occasionally seen enigma of the diabetic who has been poorly controlled for a long time and who escapes clinically significant renal or retinal disease? Must we not utilize an evaluation of the microvascular status of the patient in defining and classifying his particular type of diabetes among the "diabetides"?

Some clinical studies have yielded prospects of some approaches to the treatment of diabetic microangiopathy,[65-74] although to date no truly effective treatment is available. We may look forward hopefully to the extension of these studies and the future benefits they may provide for our diabetic and prediabetic patients.

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Ethionamide and Hepatotoxicity: A Clinical Study

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EARLY CLINICAL TRIALS with the nicotinic acid derivative, alpha-ethyl-thioisonicotinamide or ethionamide, established it as a potentially good companion drug in the treatment of pulmonary tuberculosis, especially the isoniazid-resistant form of this disease. Although these early reports included several adverse effects resulting from the use of this drug none was associated with the liver.[1-4]

More recent reports on the clinical use of ethionamide have suggested that the drug is potentially hepatotoxic. Both clinical jaundice and abnormalities in certain liver function tests have been reported in patients on this drug, and as a result its clinical efficacy has been questioned.

On our chest service selective patients with pulmonary tuberculosis (details of which will be reported later and are not of concern to this report) have been treated with ethionamide, and we are reporting on the liver status of 40 patients treated with this drug.

Material and Methods

The length of treatment in the 40 patients treated with ethionamide† varied from 4 to 14 months. The dosage was 750 mg. daily. Various antituberculous drugs were used as companion drugs with ethionamide, but pyrazinamide (PZA) was not included in any drug regimen in this study. Twenty-one (51 per cent) of these 40 patients were classified as chronic alcoholics. Although no cases of hepatotoxicity secondary to the use of ethionamide had been proven to our satisfaction at the onset of this study, our protocol included both clinical and laboratory evaluation of liver function in each patient preceding use of the study drug and at intervals while on the drug. The latter evaluation consisted of transaminase and sulfobromophthalein (BSP) tests monthly. No patient with clinical or laboratory evidence of liver disease was included in this study initially. However, later in the study 4 patients with laboratory evidence of liver disease were treated with ethionamide. These patients all had far-advanced, isoniazid-resistant disease and had had trials on numerous combinations of drugs without adequate X-ray or bacteriologic improvement. Ethionamide therapy was therefore instituted as a last resort in spite of the abnormal liver function tests. One of these patients had a pronounced allergic history (including hypersensitivity to isoniazid and PAS); it was thought that he had not had a long enough trial on ethionamide for adequate evaluation, and he is therefore not included in this report. The remaining 3 were chronic alcoholics with abnormal BSP tests and in addition an elevated serum transaminase level in 1 of the 3.

Results

Table 1 shows the length of treatment of the 40 patients. There was no clinical evidence of active liver disease (jaundice, hepatomegaly, or tenderness) during this period. Two (5 per cent) of the 40 patients showed liver function abnormalities as evidenced by an abnormal BSP test in each after 4 and 6 months of therapy respectively. Each abnormal BSP test was preceded by a severe gastrointestinal disturbance as shown in table 2. This subsided in each only after ethionamide was discontinued and was followed by gradual return of the BSP tests to normal.

TABLE 1. Length of Treatment of 40 Patients with Ethionamide

Patients	Months Treated
13	4–6
20	7–10
7	11–14

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* A facility of the Department of Health, District of Columbia.

† In the form of Trecator (Ives Laboratories, New York, N. Y.).

TABLE 2. Laboratory and Clinical Résumé of 2 Patients Who Showed Abnormal BSP Tests Coinciding with Gastrointestinal Disturbances Secondary to Ethionamide

Patient 1			Patient 2		
Date	BSP*	Clinical Data	Date	BSP	Clinical Data
1/22/62	6		5/16/62	5.5	Patient on PZA therapy
8/13/62	5		6/5/62	6.5	
8/31/62		Ethionamide therapy started	8/31/62	4	
10/17/62	5		9/7/62		Ethionamide therapy started
1/22/63	2.5		11/20/62	3.5	
1/28/63		Onset of gastrointestinal disturbance	11/29/62		Onset of gastrointestinal disturbance
3/1/63	11		12/26/62		Pulmonary hemorrhage
3/27/63	13	Ethionamide discontinued	1/20/63		Gastrointestinal symptoms increase; ethionamide withheld
4/2/63		Clinical improvement; ethionamide restarted	1/22/63	12	Serum transaminase 27 units
4/9/63		Recurrence of symptoms	2/21/63	20	
4/22/63	8.5		2/22/63		Clinical improvement; ethionamide restarted
4/25/63		Ethionamide discontinued; pyrazinamide† started	2/23/63		Recurrence of symptoms; ethionamide discontinued (2/27)
5/6/63	14		3/15/63	8	
7/16/63	4.5		5/15/63	5	

* Sulfobromophthalein (per cent retention in 45 minutes)
† PZA

The functional status in each of the 3 patients who showed abnormal BSP tests (1 with an elevated transaminase level) at institution of therapy remained unchanged after 7 to 10 months on ethionamide. Additional liver function studies including serum bilirubin and alkaline phosphatase showed normal levels on serial determinations. The pertinent case history of each of these 3 patients is briefly presented.

F. H., a 54-year-old man, was admitted to a tuberculosis hospital for the first time in 1942 with a diagnosis of far-advanced pulmonary tuberculosis. Since that time he has been treated with numerous combinations of drugs except pyrazinamide, which was excluded because of an abnormal BSP test. When ethionamide was added to his drug regimen his BSP test showed 10 per cent retention in 45 minutes, and his serum transaminase level was normal. Serial BSP tests since the start of the use of the latter drug have ranged from 14 to 21 per cent without change in his hepatic status otherwise.

I. C., a 48-year-old man, was admitted to this hospital with pulmonary tuberculosis in 1959. His early clinical course was complicated by a coronary occlusion and steroid diabetes. He had a short course of pyrazinamide therapy which was interrupted because of an abnormal BSP test. He was started on ethionamide with a BSP retention of 14 per cent. At that time his serum transaminase level was 25 units and an electrocardiogram was consistent with a remote posterior myocardial infarction. Serial BSP tests, transaminase levels, and electrocardiograms have remained unchanged after 7 months on ethionamide.

E. P., a 54-year-old man, was found to have far-advanced pulmonary tuberculosis in 1959. Pyrazinamide was added to his drug regimen in 1961 but was discontinued when his BSP test became abnormal. He was started on ethionamide with a BSP of 10 per cent and serum transaminase level of 96 units. He was treated with this drug for more than 10 months before he was dropped from the study as a treatment (ethionamide) failure. At cessation of ethionamide therapy his BSP was 14 per cent, the serum transaminase level was 44 units, and the icteric index 4 units.

Discussion

Isolated case reports of clinical jaundice associated with ethionamide therapy have been reported by Rist,[5] Edge and Weber,[6] Clarke and O'Hea,[7] Moulding and Goldstein,[8] and Phillips and Tashman.[9] In addition, Lees[10] reported 4 cases of hepatitis with jaundice after 4 to 5 months of therapy among 93 newly diagnosed cases of tuberculosis treated with 1 Gm. of ethionamide daily. Of the 5 isolated cases of jaundice 3 patients were diabetics. In the 9 reported cases the pretreatment hepatic status was not mentioned in most, and ethionamide was not challenged as the hepatotoxic agent in 5 of the 9 cases. There have been several reports of abnormal liver function tests in patients receiving ethionamide.[10-13] Lees[10] reported 8 cases in this category with return of the abnormal tests to normal without interruption of ethionamide therapy. In a recent review[13] from the meetings of the National Tuberculosis Association, American Thoracic Society, and Conference of Tuberculosis Workers held in Denver, Colorado, 12 of 80 patients treated with ethionamide showed some abnormality in liver function without evidence of jaundice. Ten of the 12 patients were on pyrazinamide as a companion drug, and since this drug is known to be hepatotoxic only 2 cases are not subject to question in that pyrazinamide may have been the chief offending agent.[2]

It has been suggested that the average dose level of ethionamide used at present may be too high and accounts for the high incidence of toxicity in general ascribed to its use. In most of the reported cases of hepatitis with jaundice ethionamide was used in a dose range of 1 Gm. or higher daily. This dose range on a dose-to-weight basis may be offered as an explanation for the occasional occurrence of hepatic toxicity secondary to ethionamide therapy as reported. No patient in our study received a dose higher than 750 mg. daily. At this dose level there was observed no clinical evidence of active liver disease resulting from ethionamide after 4 to 14 months of therapy. Although 2 patients showed laboratory evidence of liver disease (abnormal BSP tests) while on this drug it is important to mention that there was a preceding severe gastrointestinal disturbance in each characterized by nausea and vomiting in both patients, intractable diarrhea in 1, and frequent loose stools in the other. These persisted in spite of symptomatic therapy, i.e., antinauseants, antiemetics and diarrhea mixtures, but subsided when ethionamide was discontinued. The fact that the BSP test remained normal in each patient for 4 and 6 months respectively while on ethionamide and that the abnormal BSP tests coincided with the onset of the gastrointestinal disturbances may suggest altered hemodynamics and temporary hepatic dysfunction as a factor in the abnormal BSP retention rather than ethionamide.

It is well established that there is a correlation between chronic alcoholism and portal cirrhosis. One would therefore expect the chronic alcoholic to show a higher incidence of hepatotoxicity to a given hepatotoxic agent, especially if some degree of hepatic damage exists. In our 21 chronic alcoholics there was noted no alteration in hepatic function associated with ethionamide therapy. Of more significance in this regard is the fact that 3 of these 21 patients had abnormal liver function tests prior to the institution of therapy yet showed no further deterioration of hepatic function over periods varying from 7 to 11 months.

Summary and Conclusion

Recent reports have presented evidence of hepatotoxicity associated with the use of alpha-ethyl-thioisonicotinamide or ethionamide in the treatment of pulmonary tuberculosis. In this report the hepatic status of 40 patients treated with this drug has been presented. The daily dose used was 750 mg., and the length of treatment ranged from 4 to 14 months. Clinical evidence of jaundice or hepatomegaly was not observed in any of these patients. Two patients showed abnormal BSP tests coinciding with severe gastrointestinal intolerances to the drug. Of this group of patients 21 were alcoholics, including 3 who had abnormal BSP tests at the initiation of therapy. The pretreatment hepatic status remained unchanged in this group while on ethionamide.

Ethionamide in a dose of 750 mg. daily in combination with other antituberculous drugs (except PZA) did not prove to be hepatotoxic in this study.

The results of this study are not conclusive, however. More clinical data are desirable before a final statement can be made relative to the hepatotoxic potential of ethionamide.

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Some Current Concepts in Infectious Diseases

Part VI. Antimicrobial Agents: Untoward Reactions and Clinical Axioms

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UNLIKE FOREIGN PROTEINS, antimicrobial agents such as penicillin are not complete antigens and probably combine in the host's body with protein in a haptenlike manner in order to become antigenically effective. Development of hypersensitivity reflects contact with the allergen, repeated contact usually being required, and the individual's capacity for sensitization, which is constitutionally or genetically determined.

Anaphylaxis, Serum Sickness, and the Arthus Phenomenon

Anaphylaxis. The concept currently held in explanation of the genesis of anaphylaxis is that antigen-antibody complexes in the presence of complement attach to certain cells, with consequent injury to these cells and their release of histamine, serotonin, choline, acetylcholine, adenosine, lysolecithin, potassium, and possibly other substances. These substances are thought to act on sensitive cells of the "shock organs" involved in the reaction.

Most often anaphylaxis occurs in persons having a strong allergic diathesis and having circulating antibodies of the reaginic type which may be demonstrable by the Prausnitz-Küstner procedure of passive transfer.

An immediate reaction of the anaphylactic type may be manifested by collapse, hypotension, tachycardia, labored and asthmatic respiration, suffusion of the face, urticaria with giant wheals, and various degrees of edema, including that of the larynx. The respiratory difficulty may become progressively severe until the subject is entirely preoccupied with breathing. He may recover slowly in the next few minutes or may die in convulsions, literally gasping for breath, with exophthalmos and his head retracted. In some cases death may be delayed as long as 24 hours. It is worth noting that in man there is no one dominant "shock organ," and bronchiolar constriction is not invariable.

In anticipation of possible anaphylaxis it is well to have a patient under observation for 30 minutes following the first dose of an antimicrobial agent for which one is responsible. Also, it is wise to give the first intramuscular injection of the drug in the arm rather than in the hip, at a level where a blood-pressure cuff can be placed above the site of injection so as to delay absorption of the antigen if necessary. Immediately on appearance of signs of possible anaphylaxis, injection of epinephrine is mandatory. Subcutaneous epinephrine may relieve a mild reaction, but one must be prepared to treat more serious reactions. Part of the dose should be injected at the site of injection of the antimicrobial agent, since this may constrict local blood vessels and slow further absorption of the antigen. If a blood-pressure cuff is applied, epinephrine should be injected above the cuff or elsewhere in the body. Massage over the site of injection of epinephrine increases its efficacy. In severe reactions, intravenous or intracardiac administration of epinephrine may be required.

Intravenously administered glucose solution containing aminophylline is helpful if marked respiratory difficulty develops and it becomes obvious that prolonged treatment will be necessary. To this solution can be added an antihistamine, epinephrine, or ephedrine solution as the situation warrants. Either levarterenol or metaraminol may be added if lowered blood pressure supervenes. If a reaction is severe, prolonged, and not responsive to such treatment, one considers adding a corticosteroid preparation to the glucose solution. In acute severe reactions it may be necessary to cut down on a vein which is inaccessible to venipuncture because of collapse of the vein or excessive obesity. Also, it may be necessary to perform emergency tracheostomy in severe laryngeal edema. Oxygen given under positive pressure may be helpful.

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* This article is being published in 6 parts, of which this is the last. Parts I and II appeared in the June 1963 issue, Part III in July, Part IV in October, and Part V in December.

In fatal cases postmortem examination may reveal distended lungs, splanchnic dilatation, hepatic engorgement, evidence of acute vascular injury, and tissue eosinophilia.

Serum sickness. Despite the terminology, the syndrome is now caused more frequently by drugs than by serum products. However, it is well to recall that transfusion of blood occasionally is followed by serum sickness.

The incubation period of serum sickness usually is 4 to 10 days but may be shorter and can be as long as 21 days. Within several days of receipt of an antimicrobial agent, usually penicillin, there may occur pruritus followed by a rash which may be erythematous, morbilliform, petechial or purpuric, but is most commonly urticarial. The rash usually appears at the site of the injection and after several hours may become generalized. Simultaneously, generalized swelling of the lymph nodes and edema of the lips, eyelids, larynx, ankles, and so forth may occur. Fever is usual. Myalgia and arthralgia are common. The patient may have headache, abdominal pain, vomiting, diarrhea, and sometimes cardiac arrhythmia. Rare complications include brachial neuritis, facial palsy, polyneuritis, and encephalopathy. The reaction may be transient and subside in 48 to 72 hours, or it may persist for 2 weeks or more.

Laboratory findings may include albuminuria, microscopic hematuria, elevation of the sedimentation rate of erythrocytes, and electrocardiographic findings including transient conduction defects. Specific precipitins persist in the serum for weeks after a serum-sickness reaction.

Symptomatic management usually suffices and includes use of antipruritic lotions, epinephrine, antihistaminics, and corticosteroids.

The Arthus phenomenon. This rare localized untoward reaction to an antimicrobial agent consists of a red erythematous area at the site of injection of the drug, which may progress to an extensive hemorrhagic necrosis and eventual ulceration. The lesion heals with a corresponding degree of scarring. Because the reaction is rare, at least in its more pronounced manifestations, one should be reticent in concluding that a given lesion exemplifies the phenomenon. Lesions that may simulate the reaction and occur more commonly may be due to intrinsically irritating properties of the injected drug, or to secondary infection at the injection site.

Some Clinical Axioms

1. Penicillin is the leading cause of allergy among antimicrobial agents. There is cross-allergenicity among penicillins G and V, phenethicillin, methicillin, and oxacillin.

2. The frequency of allergic reactions to penicillin has increased. Repeated courses of penicillin have so sensitized the population that perhaps 10 per cent will react to the drug in an untoward manner.

3. Untoward reactions to various antimicrobial agents, including penicillin, may be a potential present in a constitutionally predisposed portion of the population. A higher proportion of individuals appear to react untowardly to a high dose, repeated courses, or prolonged administration.

4. As a generalization, the incidence of allergic reactions to penicillin appears to be least when the agent is taken orally, somewhat higher when aqueous crystalline penicillin G is given by injection, distinctly higher on intramuscular use of procaine penicillin G, and highest when penicillin is applied locally.

5. Drug fever, skin reactions, anaphylaxis, and "serum sickness" may follow the use of penicillin. Of the antibacterial agents, only penicillin commonly causes serum sickness. More unusual reactions to penicillin include toxic psychosis and hematemesis due to an urticaria-like reaction of gastric mucosa.

6. In anticipating allergic reactions to penicillin, a history of adverse reactions to a form of the drug in the past or the report that the patient previously exhibited other manifestations of allergy, particularly asthma, may be more important than the results of skin testing. A positive reaction to the scratch or intradermal test usually indicates a patient who may react severely to the administration of penicillin, but a negative skin reaction is no guarantee that a reaction will not occur.

7. Penicillinase may help combat certain reactions of hypersensitivity to penicillins G and V and to phenethicillin, but, conversely, it may also cause allergic reactions, including anaphylaxis. Theoretically, use of penicillinase may not be effective in allergic reactions to methicillin and oxacillin, since these drugs resist destruction by penicillinase.

8. Anaphylactoid reactions following the use of antimicrobial agents are most likely to occur after administration of penicillin, the sulfonamides, and vancomycin.

9. As with all orally administered antimicrobial agents, gastrointestinal irritation may follow use of penicillin V, phenethicillin, or oxacillin, but it is seldom severe enough to require discontinuation of therapy.

10. When aqueous crystalline penicillin G is

prepared as a sodium salt, there is about 0.1 Gm. of sodium in 1,000,000 units. This accounts for the current preference for potassium salts of the drug, especially in patients in whom sodium intake should be restricted.

11. Complaints related to the site of injection of benzathine penicillin G are not infrequent, particularly at the initiation of an individual's prophylactic program. A burning sensation, as well as aching for periods up to 24 hours and rarely limping on the affected leg, may occur. The local reaction may include erythema, induration, and local heat. Rarely, the temperature reaches 102°F for several days following an injection.

12. During therapy with oxacillin the serum glutamic-oxalacetic transaminase may be increased, but the exact significance of this is not clear.

13. Use of penicillin, erythromycin, novobiocin and other antibacterial agents having the capacity to depress the coccal members of the body flora may thereby encourage the production of bacteremia, urinary infection, pneumonia, and the like by gram-negative enteric bacilli. By periodic examination of the sputum and stools one may be able to detect antimicrobial-induced changes in the body flora in time to avert clinical superinfection.[1-10]

14. Streptomycin, sulfonamides, the tetracyclines, and other drugs capable of depressing the gram-negative elements of the normal flora may allow overgrowth of resistant staphylococci. In addition to staphylococcal enterocolitis, bacteremia, pneumonia, and other staphylococcal superinfections may occur.[11, 12]

15. Streptomycin is less likely to damage the auditory function of the eighth cranial nerve than is dihydrostreptomycin or a combination of the 2 substances. The current concept is that one should not use dihydrostreptomycin except in those rare instances in which patients need such an agent and can accept dihydrostreptomycin but not streptomycin. Whereas streptomycin may damage the vestibular function of the eighth cranial nerve, this is not so calamitous as deafness, since the dysequilibrium may be compensated, at least partially, by ocular mechanisms.

16. With normal renal function, and in keeping with the total body weight of the recipient, ototoxic effects are unlikely if no more than 2 Gm. of streptomycin is given daily for no longer than 14 days, or 1 Gm. is administered daily for no longer than 4 weeks.[6, 13-19]

17. Mild albuminuria and cylindruria may occur in patients receiving streptomycin, but azotemia is rare. In patients with inadequate renal function azotemia may be accelerated on administration of streptomycin, and by permitting accumulation of the drug in the blood because of inadequate excretion, ototoxicity may appear earlier.

18. Skin reactions, including angioneurotic edema, may follow use of any antibacterial agent, but among those commonly used, streptomycin, tetracyclines and erythromycin are less likely causative; conversely, penicillin, sulfonamides, and novobiocin[20-23] are most likely causative.

19. Visual impairment may follow use of either streptomycin or chloramphenicol and may be a reason for avoiding simultaneous use of these drugs.

20. Since "bacteremic shock" and consequent renal shutdown may complicate infections of the bloodstream due to gram-negative enteric bacilli, one must exercise due caution in the use of potentially neurotoxic agents like streptomycin, kanamycin, and polymyxin in such states.[7, 9, 10, 24]

21. Neomycin and kanamycin are not absorbed well from the gastrointestinal tract, but it is proper to avoid giving more than 4 Gm. of these agents a day, divided into 4 doses and administered by the oral route; this is especially true in patients with hepatic or renal disease. Otherwise, concentrations in the blood may reach levels sufficient to cause toxic effects, especially ototoxicity.[25, 26]

22. Oral administration of neomycin may result in evidences of deficient intestinal absorption, including steatorrhea.

23. Neomycin is 1 of 5 currently used antimicrobial agents capable of causing paresthesia, usually circumoral and of the acral parts; the others are streptomycin, polymyxin B, colistin, and kanamycin.

24. Respiratory arrest has followed overdosage of neomycin in the peritoneal cavity. More than 2 mg. of neomycin per Kg. of body weight in the peritoneal cavity of the narcotized, anesthetized patient is to be avoided. Aspiration of the bulk of the solution at the end of the operation reduces the hazard of apnea or respiratory arrest. Similar precautions on use of streptomycin, kanamycin, and polymyxin B in this manner also appear advisable.

25. Untoward effects of kanamycin include ototoxicity, nephrotoxicity, acroparesthesia, pain on injection, fever, and dermal reactions. The patient must be evaluated closely for evidences of toxicity; his hearing should be estimated weekly, and the blood urea determined twice weekly.

Toxicity is especially likely in patients with lessened renal function or dehydration, and when the total dose approaches 20 Gm.

26. In addition to kanamycin, at least 3 other antibiotics are capable of damaging the eighth cranial nerve: streptomycin (or dihydrostreptomycin), neomycin, and vancomycin. Whether ristocetin is ototoxic is not certain at this writing. One should avoid concurrent and perhaps sequential use of these ototoxic drugs. Early vestibular and cochlear complications can best be detected if audiometric and vestibular turning tests are done periodically during treatment and again 6 months after its cessation.

27. When frank diarrhea develops in a patient receiving one of the tetracyclines, specimens of stool should be examined by smear and culture in an attempt to detect staphylococci. The potentially ominous significance of "staphylococcal enterocolitis" complicating treatment with tetracyclines, as well as treatment with other agents such as streptomycin and the sulfonamides capable of depressing the normal gram-negative elements of the gastrointestinal flora, is well known.

28. Nausea and vomiting on oral use of the tetracyclines are reduced if the agent is given with cold, pasteurized milk. Use of milk sometimes is undesirable, as in patients being maintained on a low-sodium regimen. In such circumstances one may substitute 5 grains of calcium carbonate with each capsule of the antibiotic. While calcium carbonate may tend to hinder the absorption of tetracycline, blood levels are higher than when one resorts to the alternative of reducing the dosage of the antibiotic.

29. The most disturbing reaction associated with the use of demethylchlortetracyline is phototoxicity to sunlight. Persons displaying such a reaction may develop severe sunburn on brief exposure.

30. Chemical phlebitis at the site of injection is frequent after intravenous administration of the tetracyclines, and therefore use of leg veins for introduction of this and other antimicrobial agents is to be avoided. Intravenously administered agents most commonly responsible for chemical thrombophlebitis at the site of administration are amphotericin B, vancomycin, tetracycline, ristocetin, and erythromycin.

31. Any antibacterial agent given orally may cause gastrointestinal irritation, apparently reflecting its chemical nature and the individual's tolerance; tetracyclines, nitrofurantoin and sulfonamides most often generate such distress.

32. Tetracycline given to a pregnant woman may eventuate in dental pigmentation and dental deformity in her baby.

33. Administration of chloramphenicol to infants should be discontinued promptly if abdominal distention, lethargy, respiratory distress, and gray cyanosis develop ("gray syndrome"). This syndrome may be fatal and appears to reflect excessive concentration of chloramphenicol in the blood, deficiencies of drug conjugation, and poor renal function in the young infant. To avoid excessive serum levels in infants, not more than 25 mg. per Kg. per day should be given them in those rare instances when use of chloramphenicol is imperative.[27, 28]

34. Antimicrobial agents, in addition to chloramphenicol, that are associated with blood dyscrasias are ristocetin, sulfonamides, and rarely streptomycin. Whether novobiocin, colistin, or griseofulvin has affected the leukocytes to a significant clinical degree is debatable. Actually, all antibacterial agents have been accused sometime of having depressed the marrow, but since victims of dyscrasias frequently have received multiple drugs, conclusions about the other agents are established with difficulty.

35. The propionyl ester of erythromycin, triacetyloleandomycin, and sulfonamides occasionally are hepatotoxic and may cause jaundice. An exogenous substance causing pigmentation and confusion with jaundice may follow administration of novobiocin.[23]

36. The scleral discoloration following use of novobiocin usually reflects the transient deposition of a harmless pigment produced by the metabolism of this drug. The yellow pigment has been found in the plasma of patients receiving the drug, and its presence may interfere with determinations of serum bilirubin and the icterus index.

37. Allergic dermatitis, which occurs in 5 to 10 per cent of patients receiving novobiocin, is the chief objection to the drug; it is about as effective against staphylococci as is erythromycin.[20, 23]

38. Polymyxin B is most likely to produce pain on intramuscular use; the tetracyclines, bacitracin, and the 3 related drugs, streptomycin, neomycin and kanamycin, occasionally produce pain.

39. Renal function should be checked regularly in patients receiving vancomycin, and in those with decreased function the drug should be given in reduced amounts or not at all.

40. The incidence of untoward effects following use of ristocetin appears to parallel the size of the daily dose; less than 5 per cent of patients have toxic effects if the daily dose is less than 1 Gm., but almost 50 per cent have side-effects when 5

Gm. is given daily. The fact that a reduction of dosage may decrease toxicity with return of depressed elements of the blood has been considered more indicative of a direct hematotoxic effect on the bone marrow than of an allergic effect.

41. Untoward effects attendant on the use of cycloserine include drowsiness, somnolence, dizziness, dermatitis, mental confusion, and convulsions. Such effects are most likely to occur following administration of 1 Gm. or more of cycloserine daily, particularly when the individual dose exceeds 250 mg. Cycloserine should be used with caution in patients with impaired renal function. It is contraindicated in patients with a history of epilepsy.

42. Untoward effects of cycloserine on the nervous system may be prevented or controlled by concomitant administration of pyridoxine (vitamin B_6) either alone or in combination with anticonvulsants, tranquilizing agents, and sedatives.

43. Because the solubility of both free and acetylated sulfonamide is greater in a neutral or alkaline medium, alkalinization of the urine by administration of sodium bicarbonate to patients receiving sulfonamides has been attempted to decrease urinary crystallization. However, alkalinization increases the rate of excretion of the sulfonamide, lowering the concentration in the blood and requiring increased administration to produce bacteriostasis.

44. Drug fever can be caused by any antibacterial agent but appears to be most often observed on administration of the sulfonamides, penicillin, streptomycin, tetracycline, and chloramphenicol.

45. Gross hematuria may be due to 3 antimicrobial agents: sulfonamides, chloramphenicol, and ristocetin.

46. In patients receiving nitrofurantoin (Furadantin®), especially those with azotemia, polyneuropathy is a rare possibility, and if numbness or tingling occurs at any site, administration of the drug should be discontinued immediately.[29]

47. Hemolytic anemia during therapy with nitrofurantoin has occurred. A small percentage of Negroes and ethnic groups of Mediterranean and Near Eastern origin have glucose-6-phosphate dehydrogenase-deficient erythrocytes. As with fava beans, sulfonamides, and primaquine, hemolysis is more likely to occur on the use of Furadantin in persons having such a defect.

48. Phlebitis at the site of administration, flushing, chills, fever, headache, vomiting, dyspepsia, diarrhea, anemia, hypokalemia, respiratory distress, and anaphylactoid reaction sometimes with peripheral cyanosis, and azotemia may result from administration of amphotericin B.[30, 31, 32] Increasing the time involved in delivering the medication, decreasing the total daily dose, and stopping treatment for a few days have each been effective against most side-effects in our experience. Aspirin, antihistaminics, epinephrine, and corticosteroids also may help control such untoward reactions.

49. In addition to amphotericin B, antimicrobial agents capable of nephrotoxicity are neomycin, bacitracin, polymyxin B, kanamycin, the sulfonamides, and rarely streptomycin. Whether ristocetin, vancomycin, and colistin are nephrotoxic is debated.

50. Since griseofulvin is derived from a species of Penicillium, the possibility exists of a cross-sensitivity reaction in patients allergic to penicillin.

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PRESIDENT'S PAGE

COMMITTEE ASSIGNMENTS

The committees of a Medical Society are essential to its operation. It is here that many policies originate and are threshed out. It is here, too, that the Society's day-to-day business, other than the administrative work, is conducted.

Making committee assignments is a difficult and arduous task for an incoming President of the Society. It is a most stimulating one, however, because it gives him an insight into the committee structure and some idea of their functions. It also sheds considerable light on the interests and talents of the members.

The response to the questionnaire sent to you was most gratifying but almost overwhelming in the number returned. It was possible to honor requests for 1 of the 3 choices for particular committees in practically every case. It is obvious that some committees can add only 1 to 3 members a year, and that in some cases a committee is engaged in so important a project as to make it inadvisable to make changes in its membership. Thus, many first and second choices were impossible to fill. In many cases, when no response to my questionnaire was received, it was necessary to assume that a member was no longer interested in staying on a particular committee. I shall be glad to hear from anyone who feels I am wrong in this assumption.

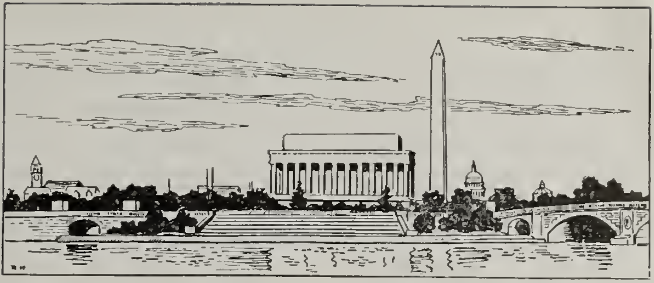
New problems have been arising and new fields for Medical Society interests are developing, and all of these should be thoroughly studied. To meet these challenges new committees may be set up by the Executive Board in the near future.

I hope all of you on our committees will join with me in working hard in every way possible for a highly successful year ahead for our Medical Society.

Edward W. Nicklas

EDWARD WILSON NICKLAS, M.D.

President, The Medical Society of the District of Columbia, 1964



EDITORIALS

Edward Wilson Nicklas, M.D.

Dr. Edward Wilson Nicklas, the Society's 96th President, was born in Philadelphia, Pennsylvania, March 30, 1904. A prominent internist, Dr. Nicklas has served on many Society committees, was Vice President in 1959, and for several years was Alternate Delegate to the American Medical Association.

Dr. Nicklas graduated from Washington's Central High School, took his premedical work at George Washington University, and graduated from George Washington University Medical School in 1928. After serving an internship at old Garfield Hospital, Dr. Nicklas entered general practice at 2200-19th Street, N.W.

At the beginning of World War II Dr. Nicklas was among the first group of physicians to serve on the Examining Board of Selective Service. However, in August 1942 he entered the United States Navy as Lieutenant Commander in the Medical Corps Reserve. During the War he was stationed at the Naval Hospital in Norfolk, Virginia, and was on overseas duty in England and Scotland. He was serving as Chief of Medicine at the U. S. Naval Hospital in Dartmouth, England, during the invasion of Normandy and participated in preparation of the Amphibious Forces.

Dr. Nicklas returned in 1946 to practice internal medicine. He is an active staff member of Washington Hospital Center and Chairman of the hospital's Formulary Committee. He is also on the staff of Doctors Hospital.

In addition to this Society and the AMA, Dr. Nicklas is a member of the D. C. Society of Internal Medicine, American College of Gastroenterology, Southern Medical Association, William Earl Clark Society of Gastroenterology, Washington Heart Association, TB Association of D. C., Medical Arts Society of D. C., Washington Diabetes Association, Phi Chi Fraternity, Masonic Order and the Kenwood Golf and Country Club.

Dr. Nicklas' primary interest has been in voluntary health, seeking to make Medical Service of D. C. work effectively in easing the burden of medical care costs. Besides serving as Chairman of the Physicians' Services Committee and a trustee of the Medical Service Board, he has attended many national meetings of Blue Shield. Dr. Nicklas is best known for his interest in the ideas and problems of others. He possesses a real desire to understand what the individual Society members and the various groups within the Society want of their organization. He hopes to devote much of his efforts to bringing these varying interests into a more unified whole so as to strengthen the Medical Society of the District of Columbia.

Dr. and Mrs. Nicklas, the former Alice Hampson of Pittsburgh, have one son, Richard, now in his fourth year at the George Washington University Medical School. They have two grandchildren, Alice Maria and Edward Wilson Nicklas.

'Flu' Vaccine in Perspective*

In your November 19 editorial, "Now They Tell Us," you referred to doubts about the effectiveness of influenza vaccine raised by U. S. Public Health Service investigators.

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* This article appeared as a Letter to the Editor in *The Evening Star*, December 4, 1963. While the information contained in it is known to most physicians, the case for continued vaccination against influenza is stated so well that our readers may wish to reread it and refer it to any patients who have doubts about the efficacy of 'flu shots.'

Influenza is known to be caused by not one but a family of viruses with different properties. Influenza viruses have an unusual capacity to change or mutate. The Asian influenza outbreak of 1957–58, for example, was caused by a virus strain that until then had not appeared in this country.

In order for a vaccine to be effective in the prevention or control of virus disease, it must create antibodies to the specific virus or viruses causing the disease. The Surgeon General of the United States Public Health Service, on the basis of advice from experts, each year tells manufacturers what virus strains must be included in their influenza vaccines for that year, and every manufacturer makes his vaccine to that specified standard. Since it is known that influenza viruses undergo major change only once in about every 10 years, with lesser changes perhaps more frequently, the Surgeon General's decision is better than an educated guess. However, it may take as long as a year or more before it can be positively established that a different strain of influenza virus is causing disease in the general population and this knowledge can be translated into the vaccine itself.

Last year one or more new influenza viruses showed up in human populations in this country. They were really further modifications of the recent Asian and B influenza strains. These were the first important changes in influenza virus patterns since 1957. The vaccines in use last year did not incorporate these new strains. It is not surprising, therefore, if—as reported—the vaccine was less effective than it had been in former years in the prevention of influenza.

The Surgeon General has directed that antigens for the modified Asian and B strains be incorporated in the influenza vaccine this year. This has been done. Therefore this year's vaccine can again be expected to be 75–90 per cent effective, as it has been demonstrated to be in former years.

Thus the Government report does not indicate that influenza vaccine is only 25 per cent effective every year. It simply restates, looking at the 1962–63 experience in epidemiologic terms, what is axiomatic in virology—that it really doesn't do much good to vaccinate against viruses that are not causing most of the disease.

Unfortunately, it takes time to isolate, identify and establish the frequency with which a new or mutant virus appears. It takes time to confirm the clinical significance of the virus and to decide whether a change is needed in the vaccine. And, after all this, it takes time to make the change in the vaccine. Each year the vaccine manufacturers move swiftly to produce the needed amounts of vaccine, made to the Surgeon General's specifications. If it does not meet those specifications, it cannot be released. Last year's vaccines—reported to be only 25 per cent effective now—met the Surgeon General's specifications. This year's vaccine, made to revised specifications, is expected once again to be effective for most people, but this does not guarantee that the elusive virus-family will not cause further modifications next year or the year after.

It would be most unfortunate if the American people had their confidence in the vaccine shaken by the Government report, which simply highlights a seemingly inevitable time lag between the acquisition of new knowledge and its application in medicine and public health. The facts justify continued and widespread influenza immunization as today's only means for controlling a disease that is serious in itself, more serious in its complications, and often fatal among the aged and the chronically ill.

Last year was not the first time the vaccine hasn't lived up to expectations, and it probably won't be the last. But I'm sure most medical authorities would agree that when influenza vaccine is viewed in its total perspective, it is a good preventive agent that warrants general use, particularly in certain groups that because of age or illness require all available protection.

AUSTIN SMITH, M.D.
President, Pharmaceutical
Manufacturers Association

Health Dept. Notes

Reporting of Communicable Diseases

DURING THE PAST DECADE or two, medical research has provided us with weapons to control the spread of communicable diseases. Great strides have been made with the discovery of new antigens, vaccines, penicillin, and sulfonamides.

Although these new developments have greatly affected disease control, they have not changed the fundamental principles.

Communicable disease control presents 2 distinct problems. One is providing protection for the individual. This is best handled by members of the medical profession on a physician-to-patient basis. The other problem is the protection of the community.

The community represents a complex of cultural attitudes, social influences, economics and other pressures which may enhance or impede communicable disease control measures.

Health departments were originally created for the distinct purpose of preventing the spread of communicable diseases within a community. No one person is able to do this alone. As long as we have contact with one another through family living and engage in commerce and travel with other people, there is danger in the spread of infection.

The official health agency represents the organized community effort to break the chain of infection. This is accomplished through an orderly pattern of disease control. It is here that members of the medical profession have much to offer the official agency.

In order for the Health Department to be most effective it must know where, when, and under what condition disease is occurring. Therefore, it is important that local physicians report quickly and accurately diseases which are communicable. These are spelled out in a brochure called "Communicable and Reportable Diseases, Chapter 5, 1963, District of Columbia Department of Public Health."

Briefly, the following communicable diseases require reporting within 2 hours of provisional diagnosis or the appearance of suspected symptoms. The report is made by telephone to the Director, D. C. Department of Health and confirmed in writing within 24 hours.

Animal bites
Anthrax
Botulism
Cholera
Diarrhea of newborn, infectious
Diphtheria
Food-borne disease
Meningococcal infections
Plague
Rabies, man and animal
Smallpox
Staphylococcal infections, newborn
Streptococcal infections, newborn
Typhus fever
Yellow fever
Unusual occurrence of any disease

The next group of diseases are to be reported by telephone within 24 hours of provisional diagnosis, or the appearance of suspicious symptoms, and confirmed in writing within 48 hours of diagnosis:

Aseptic meningitis syndrome
Dengue
Leprosy
Poliomyelitis
Psittacosis
Relapsing fever, louse-borne
Salmonella infections:
  Typhoid fever
  Paratyphoids

These diseases must be reported in writing within 48 hours of diagnosis or the appearance of suspicious symptoms:

Amebiasis
Brucellosis
Conjunctivitis, acute bacterial
Dysentery, bacillary
Encephalitis
German measles
Glanders
Hepatitis, infectious and serum
Leptospirosis
Malaria
Measles
Rheumatic fever
Ringworm of the scalp
Rocky Mountain spotted fever
Streptococcal infections, hemolytic
Tetanus
Trachoma
Trichinosis
Tuberculosis
Tularemia
Venereal diseases:
  Chancroid
  Gonorrhea
  Granuloma inguinale
  Lymphogranuloma venereum
  Syphilis
Whooping cough

Some diseases, such as the following, and any other communicable disease causing an outbreak of illness or toxic conditions in unusual numbers within an institution or group should be reported by telephone to the Director of Public Health within 24 hours of diagnosis or the appearance of suspicious symptoms.

Chickenpox
Enterobiasis (pinworm)
Glandular fever, infectious
Histoplasmosis
Impetigo contagiosa
Influenza
Keratoconjunctivitis
Mumps
Pediculosis
Pneumonia
Scabies

Forms for reporting communicable diseases are available from the D. C. Department of Public Health.

The information reported to the Director of Public Health is used to map the incidence, prevalence and trends of communicable diseases in the community. Problems can be pinpointed and control measures established. This information is made available to practicing physicians and other medical personnel who are concerned with control measures.

In addition, educational programs can be initiated and aimed in the direction in which they will be most effective.

When indicated it may be necessary to conduct epidemiologic investigations in order to trace the source. Investigation cannot begin until the Health Department has some knowledge of the existing cases. This is why prompt reporting is important.

It should be pointed out that effective programs of disease control require joint efforts of physicians and official health agency personnel.

MURRAY GRANT, M.D., D.P.H.
D. C. Director of Public Health

The Greenbrier Conference on Maternal and Perinatal Mortality and Morbidity*

The Greenbrier Conference concerned itself with 4 programs in the field of maternal and child care which were primarily authorized by the AMA. It also discussed the Progress Report of the Perinatal Research Branch of the National Institute of Neurological Diseases and Blindness. There were, however, areas of omission which I shall call to your attention.

The Conference leaders expressed pride in the progress of these programs, but an urgent need to stimulate and encourage greater participation in all areas of the birth process was evident in the contributions of the essayists.

Following is a brief statement of the objectives of the programs initiated by the AMA:

1. Guide for the organization of state and local Maternal and Child Care Committees. The stated purposes of the Committee on Maternal and Child Care are:

(a) To keep informed on programs, studies, and research designed to improve maternal, infant, and child health;

(b) To compile and publicize this information to the end that others in the same field may utilize it to the best advantage;

(c) To coördinate efforts of and effect liaison with other groups working on these problems; and

(d) To serve as a center for the compilation and distribution of results of studies and programs promoted by the Committee and carried on by similarly titled Medical Society committees at state and county levels.

Contained in this area of discussion was a significant presentation by Dr. Joseph Greengard, Professor of Pediatrics, University of Illinois, entitled "Battered Child Syndrome." This shocking revelation warrants significant analysis and activation by our Committee on Child Health.

2. A Guide for Maternal Death Studies.

Although emphasis in maternal death studies is on the prevention of maternal mortality, the longer range results of this effort will be found in reduction of morbidity as well. Reduction of both mortality and morbidity in turn has a direct effect on the improvement in perinatal mortality and morbidity. It is this latter problem, the reduction of perinatal mortality, to which studies such as these should lead.

3. A Guide for the Study of Perinatal Mortality and Morbidity.

The objective of perinatal mortality and morbidity studies is elimination of deaths and damage during the process of reproduction. In working toward this objective, all individuals and committees should rigidly and courteously adhere to scientific and ethical principles.

4. Progress Report on the Foundation for Medical Research—Perinatal Study.

Dr. Sydney H. Kane, Executive Director of the Foundation, presented a review of significant findings and an analysis of data from the participating hospitals.

Progress Report on NINDB Collaborative Project

This partial report related to work in progress of the Collaborative Study on Cerebral Palsy, Mental Retardation and Other Neurologic and Sensory Disorders of Infancy and Childhood.

The report indicated a meritorious, multidisciplinary approach to these many problems. The areas of congenital malformations and mental defects and "The Physician's Role in Mental Retardation Problems" were well explored.

There were 2 significant areas not included in the discussion:

(a) By act of Congress, implementing medical facilities with a planned increase in the medical health manpower with the corollary of improved provisions of health services for the civilian population.

(b) There are at present 8 institutes within the National Institutes of Health. The eighth is the newly created Institute of Child Health and Human Development, Dr. Robert A. Aldrich, Director.

The purpose of this Institute was contained in President Kennedy's Health Message for 1963. He stated: "We look to such an Institute for a full-scale attack on the unsolved afflictions of childhood. It would explore prenatal influences, mental retardation, the effect of nutrition on growth, and other basic facts needed to equip a child for a healthy, happy life. It would, in addition, stimulate imaginative research in the health problems of the whole person throughout his entire life span—from infancy to the health problems of aging."

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* This Conference, held at White Sulphur Springs, West Virginia, October 14 and 15, 1963, was sponsored by the Committee on Maternal and Child Care of the Council on Medical Service, American Medical Association. Representing the Medical Society of the District of Columbia at this Conference were Drs. C. K. Fraser and Allan B. Coleman.

My informal presentation delineated our methodology in an effort to improve community maternity services. Emphasis was placed upon the changes in the characteristics of the population in the District of Columbia. These changes have influenced maternal and perinatal mortality and related problems significantly. The related problems, so well presented by Dr. Ella Oppenheimer, are the economic characteristics of the population, lack of prenatal care, illegitimate births, the relationship of premature birth to neonatal mortality, clinic availability, follow-up care of mother and baby.

Complete understanding of data in fetal, neonatal, prenatal and maternal death rates in terms of resident and nonresident occurrences is essential. When the nonresident occurrences are removed and there remain only the tabulations for resident rates, the picture is grim.

Dr. Samuel Shwartz, Chief of the D. C. Bureau of Maternal and Child Health, recognizes the situation well and is seeking remedies to implement maternity services.

My presentation closed with a query to the Conference. It is evident from this report that there are many areas of investigation, similar in content, but related one to the other, being pursued by different groups. How best to coördinate efforts?

Could the majority of investigators exploring variants of the birth process be brought into a coöperative or collaborative area of participation where their contributions may be publicized? This might be a program fostered by the AMA or sponsored perhaps by the newly created Institute of Child Health and Human Development.

C. K. Fraser, M.D.
Chairman, Obstetrical Board, Consultant to Subcommittee on Maternal Welfare

My report on the sessions of this Conference is limited to the pediatric view, since Dr. Fraser's report reflects the obstetric view.

The members of the AMA Committee on Maternal and Child Care of the Council on Medical Service began the first morning session with a review of the development of the Committee's activities and of the Maternal and Perinatal Study Guides, published by the AMA. This session contained no new material. The final morning paper, by Dr. S. H. Kane, of the Foundation for Medical Research, stressed the broadly based statistical analyses possible to this study; the value of careful postmortem studies of nonsurviving prematures in assigning diagnoses other than prematurity; also, the astonishing perinatal mortality of breech deliveries (3:1 over vertex).

The first afternoon session began with excellent papers on:

1. Anesthesia during Labor, by Dr. R. A. Hingson.

Although presenting statistics heavily weighted to show the relative advantages of conduction anesthesia (in which the author pioneered), one was impressed by the citation of 18,000 consecutive deliveries at Western Reserve without a maternal death and with a low perinatal death figure despite the large percentage of nonwhite patients. Likely, excellent prenatal care and expert anesthetic and obstetric management were factors in this. Dr. Hingson stressed the importance of insisting that all patients in labor, whether under general or conduction anesthesia, inhale a gas mixture containing a minimum of 40 per cent oxygen plus lung "flushing" with 100 per cent oxygen when indicated as a means of limiting unsuspected intrapartum anoxia.

2. Placental Pathology, by Dr. K. Benirschke.

Proper labor room examination of the placenta for such easily established abnormalities as single umbilical artery, clouding or other inflammatory changes of the fetal surface, and membrane examination in twins to detect the monochoroidal pair likely to have anastomosing placental blood vessels with 1 plethoric and 1 anemic twin, both of whom might succumb to the effects of this imbalance, are indicated.

3. Factors Influencing Prematurity, by Dr. J. F. Donnelly.

The mother of a premature is most likely to be short, primigravida, nonwhite, and from a relatively deprived socioeconomic stratum.

4. The "Battered Child," by Dr. J. Greengard.

At least in Chicago this problem is not confined to deprived population groups. It should be suspected in instances of unexplained failure to thrive, unusual burns, multiple fractures, subdural hematoma, and other repeated episodes of trauma.

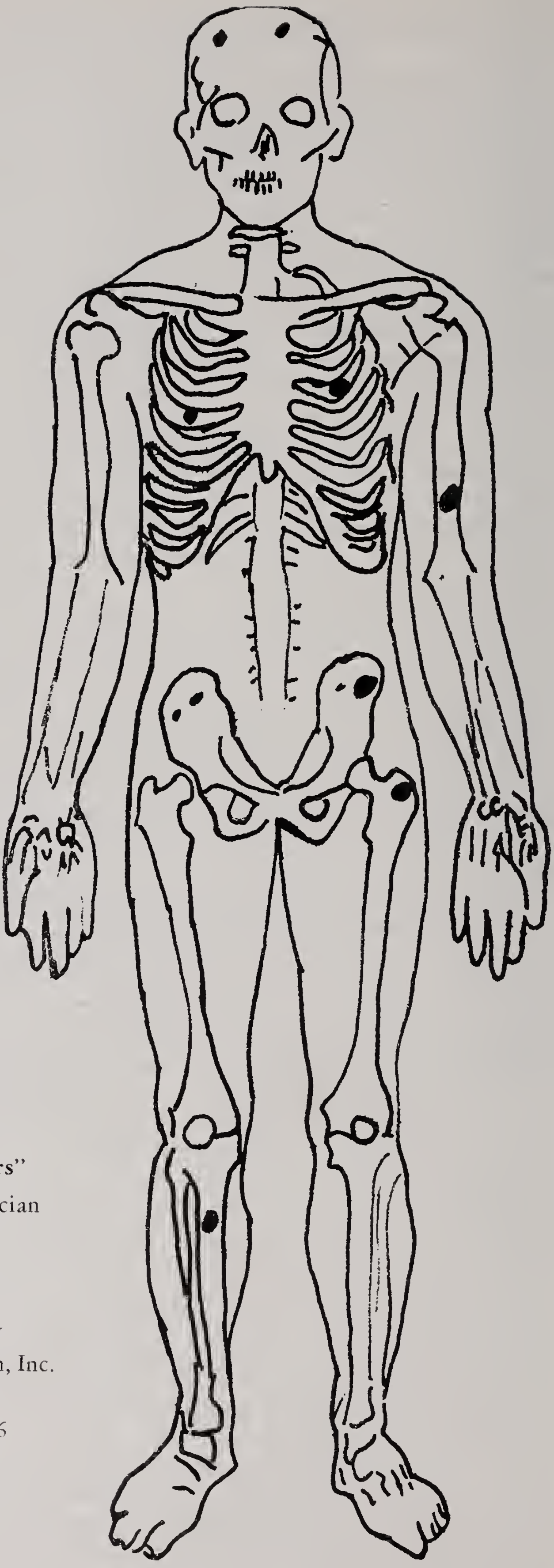
Physicians should have legal protection to make reporting of suspected cases more feasible.

Psychiatric aspects of the parental motivations need investigating.

The first day ended with a demonstration of the operation of a combined maternal and perinatal study committee, using actual cases from the North Carolina State committees.

The final day began with a progress report on the NINDB collaborative project, which will

(*Continued on page 46*)



DOCTOR, REMEMBER

1. Metastatic cancer of the bone is more common than primary cancer of the bone.
2. Common primary sites are:
   - (a) Breast
   - (b) Prostate
   - (c) Lung
   - (d) Kidney
   - (e) Thyroid
3. Incidence is greater in older age group (40 plus)

In Primary Cancer of the Bone:

1 Local pain is the cardinal symptom
2 Local swelling usually recurs
3 Incidence is greater in younger age group (10–30)

For Diagnosis:

1 You must have a high index of suspicion
2 X-ray suspected areas

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SERVICE

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EXecutive 3-3690

Science and Health Communications—The Challenge of the '60's*

LUTHER L. TERRY, M.D.

Surgeon General, Public Health Service, United States Department of Health, Education, and Welfare

I AM GLAD TO BE HERE tonight and to have a part in this Institute on the Appraisal of Teaching Techniques in Medical Education because it is dedicated to a cause which we in the Public Health Service share wholeheartedly with you—the improvement of medical education, an enduring and ever more complicated challenge in our ever more complex age. The George Washington University and its School of Medicine, the Educational Facilities Laboratory of the Ford Foundation, and all who have had a hand in its planning and execution are to be congratulated for making this Institute possible.

Education—ultimately and obviously—is a process of communication. It may be the personal relationship between pupil and tutor, or it may, in more complex form, employ fantastically intricate electronics devices.

Through much of the last century the student of medicine lived and learned with a practicing physician or progressed by personal experiences and experiments. The physiologist, Dr. William Beaumont, learned his medicine in that manner in New England in 1812. Some 20 years later your own George Washington University awarded him his only medical degree when he published his famous observations on digestion. It was an honorary degree, but certainly an earned one.

It was not really until 1900, prodded by the Johns Hopkins University, that the teaching of medicine took on its formal character. Today medical education is truly, in Dr. Bernard Dryer's phrase, a "lifetime of learning." In these 60-odd years we have come a long and irreversible way from the concept of teaching by Mark Hopkins on the end of a log with a student at the other end.

Someone has said that, "if the 1950's were the years for medical research, the 1960's belong to education." I would go further. I believe that the '60's and beyond belong also to communications. Formal education is an important, but only one part of the whole dynamic communications process. Or, if you choose, it is possible to go beyond that even and suggest that in the 60's and 70's and 80's we will see in this country and elsewhere a vast quickening of the application of knowledge to the needs of people. For this is the end toward which, I believe, all of the life sciences must now move; and the improvement of education—and of communications—is simply an inevitable and pressing means toward this goal.

There is logic here, because today's preoccupation with communications is the outgrowth of the rich and rewarding emphasis on medical research of recent times. When the American public a decade or so ago sought to improve its health and well-being, it made its wishes known to the Congress, and the Congress established a remarkable program of Federal support for a world-wide search for methods for preventing and treating major illnesses.

This program has been formidable, both in depth and scope. The time, the money, and the creative research talent that have gone into it, however, have been invested—not spent. And although the returns have already been great, the impact of this effort will continue to be felt down the remaining decades of this century and beyond, because the acquisition of knowledge is irresistibly cumulative.

The success of this effort has already brought us to a crisis in communications. We have today built up such a backlog of scientific and technical information that we can well ask the question posed by Toynbee: "Can computing machines come to the rescue of human minds that are in danger of being drowned in an ocean of information?" The question answers itself. Machines alone cannot rescue the mind—nor substitute for it. Human ingenuity, imagination and effort of a high order can. And if we are to cope with our present difficulties in scientific communications and equip ourselves for the future, Government, industry, universities, private organizations, and individuals must all exert a prodigious and substantial effort.

For the Public Health Service I am glad to report that we have made a beginning—or, perhaps better, in Winston Churchill's phrase—we have made the beginning of a beginning toward strengthening and modernizing our scientific and technical communications. I emphasize the word strengthening because much of our work has always been the business of communicating. This is our ongoing job.

---

* Presented at a dinner meeting, April 12, 1963, at the Hotel Statler-Hilton in Washington, D. C., which was held in connection with the Institute on Appraisal of Teaching Techniques, sponsored by George Washington University.

But within the past year, with the strong encouragement of the Administration and the Congress, we have taken certain positive and affirmative steps which are already beginning to show results.

The word communications is, of course, an abstract word. It has suffered from use—and, in fact, from some abuse—during recent years. Because it is so amorphous, it seemed to us that there was a need to reach some definition of the term or, at the least, to know better what we were all talking about and to chart a course of action.

Last fall, therefore, I called together a group of 39 special consultants to look into the question. Under the leadership of Dr. F. Ellis Kelsey, Special Assistant to the Surgeon General for Science Information, and with the assistance of staff members of the Service, these conferees spent 3 days and half the nights pondering the question and the means by which the Nation, specifically, the Public Health Service, could do its share in bettering the process.

The conference was held at Airlie House in Warrenton, Virginia. The results were published and widely distributed early this year. Altogether, nearly a hundred persons took part in the conference—persons skilled and knowledgeable in the field of science and medicine and in communication. The results were the product of many minds, some from within the Service, others from elsewhere throughout the country, and including some of you who are here tonight.

From this conference came 23 separate recommendations, a charter and a bill of particulars, most of which will require many, many months to put into being.

As a result of this conference and through independent action taken within the Service, a number of steps have already been taken which will, I believe, be of interest to you.

They are listed categorically here and in no particular order of priority:

A proposal to establish a Drug Information Clearing House to bring about a more systematic approach to drug information handling. Our present methods are cumulatively failing to provide the information to those who need it. As part of this effort, last week we engaged the services of Dr. William Spring, formerly Director of the Department of Drugs of the American Medical Association, to undertake a 4 months' study to determine the needs of the various groups involved. We expect a full report by midsummer.

The establishment of a clearing house for information on mental illness and mental retardation to bring about a more systematic and usable exchange of information on this baffling national health problem.

The establishment in the National Library of Medicine of an advisory committee for scientific publications to review and evaluate applications for support of these publications.

The establishment of an internal committee on scientific and technical information from all branches of the Service which meets monthly with the Assistant to the Surgeon General for Science Information to exchange ideas and information on a Service-wide basis and to make recommendations to me on improvements in the flow of this information.

The acceleration of in-service training for our information and publications officers, to keep them fully aware of new techniques in communication to the many audiences with whom they deal. A session of this sort is being held at the Service's Communicable Disease Center on April 22 and 23. I might add that we also have under consideration a proposal from Airlie House for a series of seminars with the same general objective for our information officers and program officials of the Service.

The establishment of a Committee on Information advisory to me on all aspects of the communications process from network television to library abstracting services. I expect to have a formal announcement covering this committee within the next several weeks.

A planned expansion of information to the public, particularly through the use of television and radio.

A carefully conceived program of research and evaluation in the communications process itself about which too little is known and much is to be learned.

Other activities, some new and some long in being, illustrate both the traditional concern of the Public Health Service in communications and the new effort now being made—the Medlars system of the National Library of Medicine, the network of Poison Control Centers, the air, water and milk nation-wide radiologic testing, the Epidemiological Surveillance Service at CDC, the seminars, conferences and formal training programs we conduct, and, of course, the less dramatic day-by-day dissemination of information and education of all kinds by Service personnel and its grantees.

What success we will continue to have with these efforts and those over the horizon will depend in part on our own efforts, but in even larger part from the efforts of those outside the Government. This, in our society, is a constant, common denominator in all we do. There are encouraging signs—in television, for example. The Columbia Broadcasting System within the past month produced 2 network television shows in the field of medicine which brought to many millions information about a significant new development in medicine and an emerging health problem of truly national scope. I am referring to the CBS documentary on the measles vaccine, "The Taming of a Virus" and "The Silent Spring of Rachel Carson."

Science writers, editors, librarians, computer technicians, members of the health professions and of universities and foundations, the laboratories of the Nation and their personnel, and you, certainly, as physicians, all have a stake in the improvement of our communications. Whether it is between scientist and scientist, between the worlds of science and health practice, and from these worlds to the public, which holds the largest stake, we all have a responsibility. We in the Public Health Service share that responsibility with you, for share it we must.

Mankind's progress, from time to time, has been ascribed variously to the opposable thumb, the invention of the wheel, and the gift of fire. All of these, no doubt, have had a part in our evolution into what Carlyle called "an omnivorous biped wearing breeches."

At the risk of stating the obvious, we could perhaps agree that the invention of language—the ability to effect the exchange of the images in one mind with another—was perhaps the single most important event in mankind's history.

When we talk about communications we are wrestling, therefore, with one of the most ancient preoccupations of man. I do not envision the day when we shall not be doing so or when the art will be perfected. Those of us in medicine are faced perhaps with a less philosophical, more mundane challenge: to do our part in learning more, thinking more, and doing more to bring knowledge to bear in the age-old job of relief of human suffering. This is our burden and our endless opportunity.

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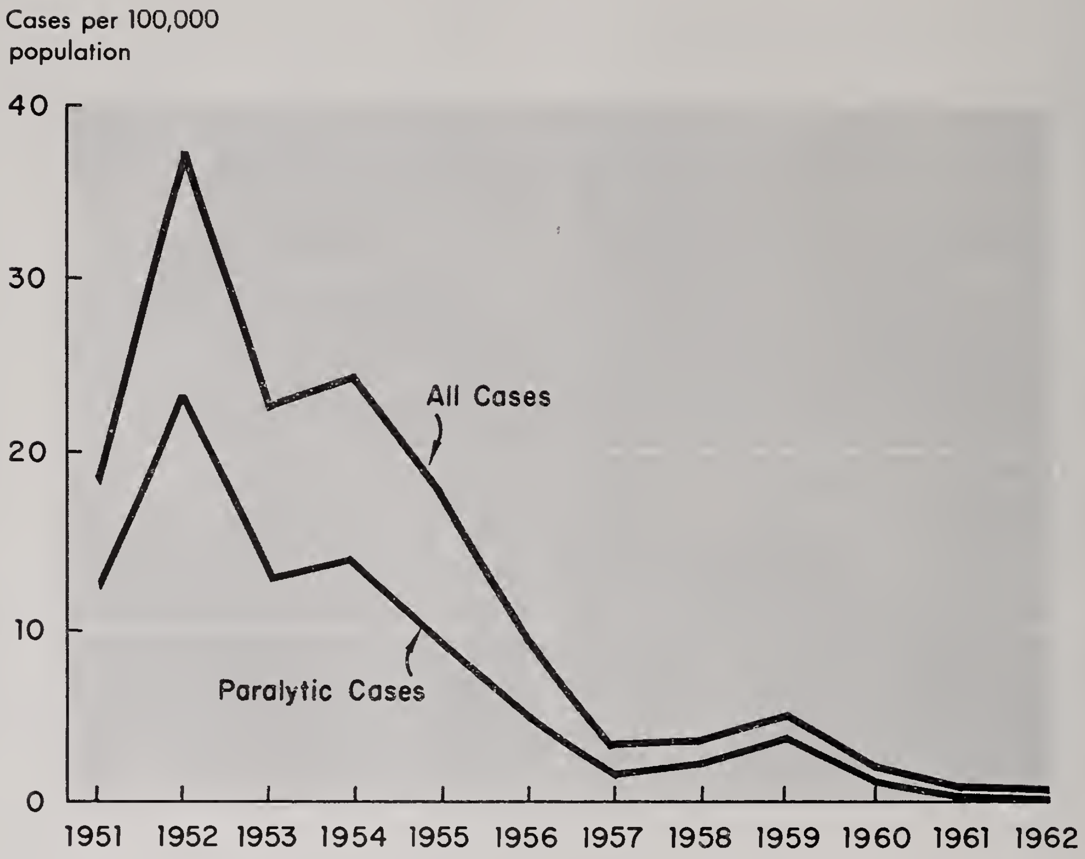
The Continuing Decline of Poliomyelitis

CHART 1. Annual Case Rates of Poliomyelitis: All Cases and Paralytic Cases*
United States, 1951–63



* Paralytic case rates estimated by applying the proportion paralytic among cases with paralytic status specified to the total number of reported cases.

SOURCE: Various reports by the Communicable Disease Center of the U. S. Public Health Service.

ACKNOWLEDGMENT: Charts 1 and 2 appeared in the September–October issue of *Progress in Health Services*, a publication of Health Information Foundation, Graduate School of Business, The University of Chicago, and are reproduced by permission.

Patients Needed for Clinical Center Studies

THE COÖPERATION OF PHYSICIANS is requested in the referral of patients with certain specified ailments for a study of their conditions at the Clinical Center by one of the National Institutes of Health.

Congenital Anosmia

Patients with congenital hereditary anosmia are being studied at the Clinical Center by the National Institute of Arthritis and Metabolic Diseases.

Patients with acquired anosmia would not be eligible for this current study.

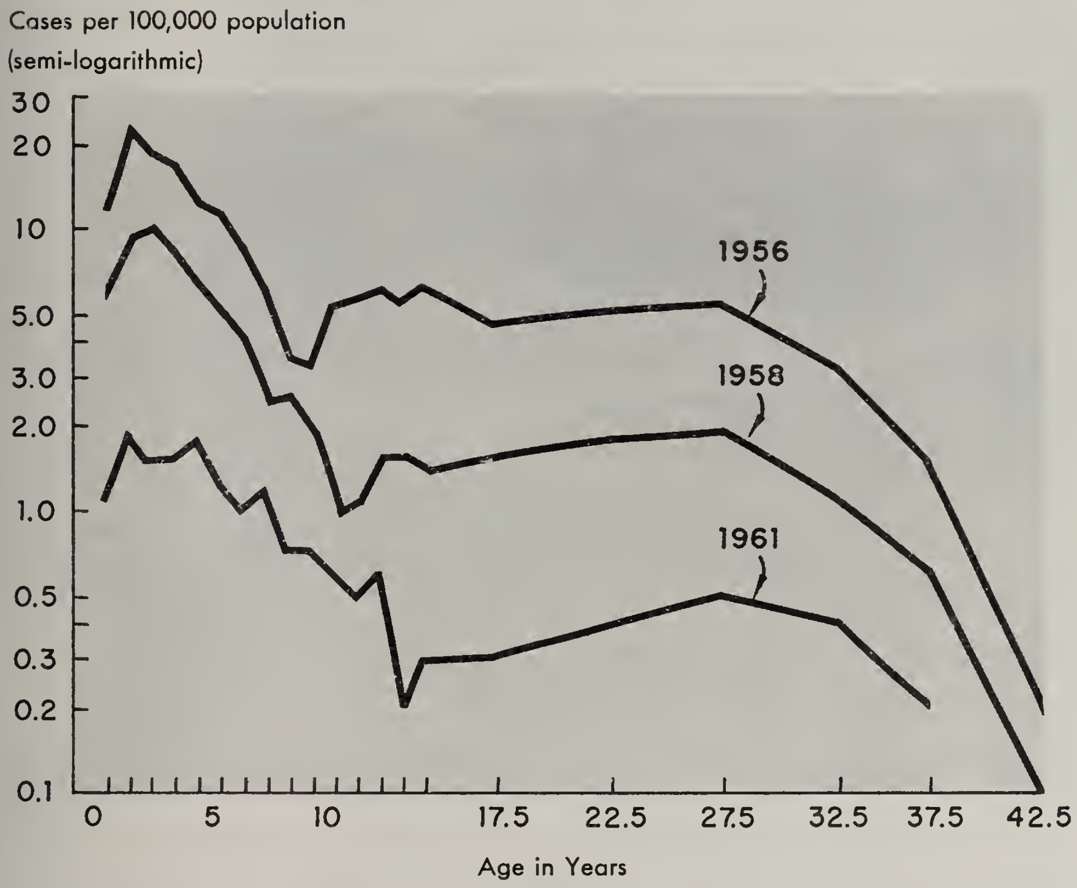
Physicians interested in having their patients considered for admission to this study may write or telephone Saul W. Rosen, M.D., Clinical Endocrinology Branch, National Institute of Arthritis and Metabolic Diseases, Bethesda, Md. (20014); telephone: 49-63058.

Therapy of Blastomycosis

The National Institute of Allergy and Infectious Diseases is conducting a special study on patients suffering from pulmonary, genitourinary, or cutaneous lesions—whether untreated or previously treated and in relapse.

Physicians interested in having their patients considered for admission to this study may write or telephone John P. Utz, M.D., Chief, Infectious Diseases Service, National Institute of

CHART 2. Annual Case Rates of Paralytic Poliomyelitis by Age*
United States, 1956, 1958, and 1961



* Rates are shown by single years of age up through 14 and by 5-year age groups after that. Rates for the age group 40 and over were arbitrarily plotted at 42.5. The rate for this age group in 1961 was too small (less than 0.05) to be included in the chart.

SOURCE: Same as Chart 1.

Allergy and Infectious Diseases; telephone: 49–63461.

Thalassemia

Patients with thalassemia major (Mediterranean anemia or Cooley's anemia) are needed for a continuing study in progress at the Clinical Center.

Patients who have not received transfusions within 1 month prior to admission are preferred. However, they will receive transfusions at the Clinical Center if needed. Young patients must be over 5 years of age.

Hospitalization for a period of 1 or 2 weeks should be anticipated for carrying out the required studies, which will include blood tests and bone marrow examinations. Upon completion of their study patients will be returned to the care of their referring physicians, who will receive a complete narrative summary and report of the findings.

Physicians interested in having their patients considered for admission to this study may write or telephone Dr. Sherman M. Weissman, Office of the Director of Intramural Research, National Cancer Institute; telephone: 49–63130.

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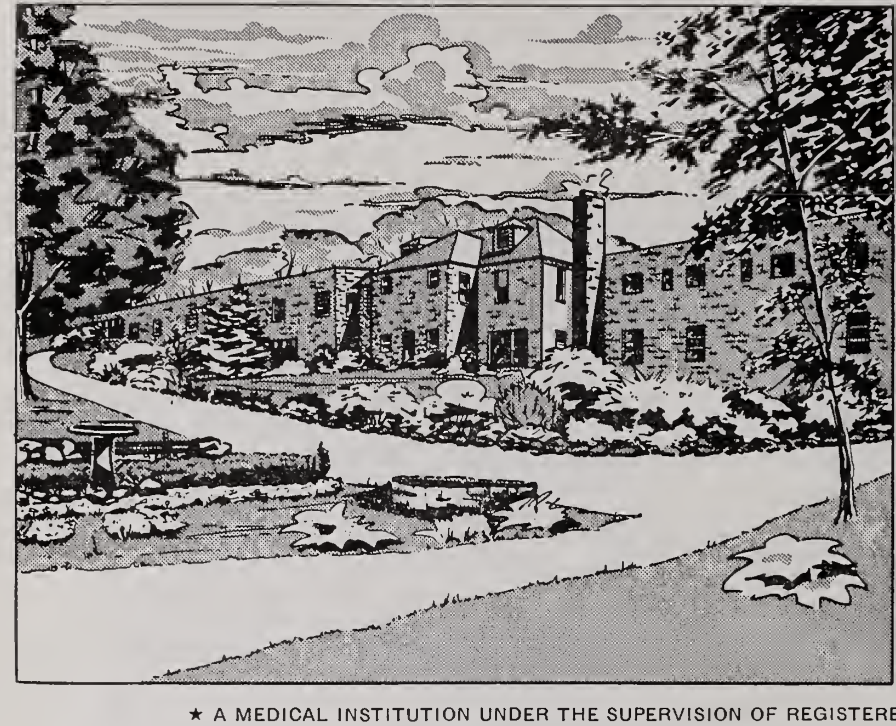

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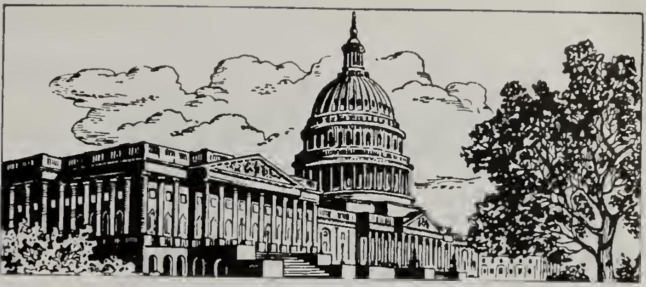

NEWS & PERSONALS

Boards & Committees

The regular meeting of the **Executive Board of the Medical Society of the District of Columbia** was held, November 25, 1963, in the Medical Society's building at 7:30 p.m. Dr. W. LeRoy Dunn, Chairman, presided. Present were Drs. Victor R. Alfaro, C. Willard Camalier, Jr., Karl C. Corley, J. Spencer Dryden, Grace H. Guin, Raymond T. Holden, Edward W. Nicklas, Duane C. Richtmeyer, J. Rogers Young, and Mr. George Cooley, Secretary.

Committee Meetings: The Secretary reported the following committee meetings held since the Board last met:

October	25	Finance Committee
	29	House Subcommittee
	29	Committee on Public Health
November	1	Review Board for Prepaid Medical Care Benefits
	4	Committee on Mental Health
	5	Committee on Postgraduate Education
	7	Subcommittee on Child Welfare
	13	Board of Credentials
	14	Medical Bureau Committee

Chronic Disease Unit of Washington Hospital Center: The Director and Assistant Director of the Washington Hospital Center were present to review the plans for a Chronic Disease Unit on the grounds of the Center. The purpose of the presentation was to seek official support of this Society and its individual members for this project. The final decision was postponed until the next meeting.

Board of Credentials: The following recommendations of the Board of Credentials were approved:

Active Members

William Edward Flynn, Department of Psychiatry, Georgetown University
George Lyons Hall, D. C. General Hospital
Fred George Hilkert, 922 24th Street, N.W.
Monroe Lawrence Neuman, 3000 Connecticut Avenue, N.W.

Associate Members

Fred Harlow Clark, Veterans Administration
Howard N. Bernstein, 8712 Old Georgetown Road, Bethesda, Md.
John Gordon Lofft, 2029 Que Street, N.W.
Morton Walter Shapiro, 8107 Eastern Avenue, Silver Spring, Md.

Transfers

Associate to Active: Theodore Roe Austin

Active to Associate: Virginia A. Duggins, John David Herman, John J. Mulligan, and Harold A. J. Wiedemann

Resignations

Active: Robert G. Busboom and Reginald A. Cutting

Annual Business Meeting: The Secretary presented a report on the Annual Business Meeting, held November 10, which was accepted for publication in the MEDICAL ANNALS.

Annual Scientific Assembly: The Secretary reported on the registration and attendance at the ASSEMBLY, November 18, 19 and 20. The Executive Board voted to extend its appreciation to the various committee members for their efforts toward making this meeting a success.

Committee on Postgraduate Education: The Board discussed a report of this Committee which concerned the policy in some hospitals to have interns and residents sign and complete hospital records without review by the physician in charge of the case. It was agreed that this matter might well have adverse legal effects and that a communication in reference to it be sent to the hospitals and to the Society membership.

Memo from Dr. William P. Herbst, Jr. re Public Health Department: The Executive Board discussed a memorandum concerning various aspects of the Health Department's new reorganization plan and authorized the President to appoint a committee to meet with Dr. Herbst and then to confer with Dr. Grant.

AMPAC: It was voted to coöperate with AMPAC through a local "Physicians' Committee for Good Government" and to circularize Society members concerning direct membership in AMPAC, which is located in Chicago.

AMA Policy on Compensation for Interns and Residents: In view of a petition signed by 85 doctors, it was agreed not to introduce the resolution rescinding this policy (agreed upon at the last meeting of the Board) before the House of Delegates in Portland, Oregon.

Next Meetings of the Executive Board: A special meeting will be held, Thursday, December 12, at the Society's headquarters and the regular meeting will be held on Tuesday, December 17, at the home of the Chairman, Dr. Dunn.

Meetings

The Columbia Hospital for Women and Lying-in Asylum announces the second in a series of **Postgraduate Medical Seminars and Technical Workshops in Gynecologic Cytology**, January 13–17.

Guest lecturers will include Dr. Humbert L. Riva, Professor and Chairman of the Department of Obstetrics and Gynecology, Seton Hall College of Medicine; Dr. Marvin A. Jackson, Head of the Department of Pathology, College of Medicine, Howard University; and Dr. Thomas R. Turner, Lecturer in Cytology, Department of Obstetrics and Gynecology, Seton Hall College of Medicine.

The Technical Workshop will present instructions in cytologic screening techniques with particular emphasis on the Riva-Turner Rapid Acridine Orange Method. This was developed by Dr. Riva and Dr. Turner at the Walter Reed Army Medical Center under a research grant. The method is based on the phenomenon of increased nuclear fluorescence of hyperplastic and neoplastic cells which are stained by acridine orange and then examined using a fluorescence microscope.

All inquiries concerning the Seminars and Technical Workshops may be addressed to Dr. William J. Jaffurs, Pathologist, Columbia Hospital for Women, who is the Seminar Director for this program.

The Metropolitan Medical-Legal Society will meet at the Army-Navy Club, Wednesday, January 22, to hear an address by Traffic Director George A. England.

Membership in this Society is open to all physicians. Those wishing to apply for membership and desiring to attend the next meeting should communicate with Dr. Frederick Hartsock, 1712 Eye Street, N.W., Washington 6, D. C.

The 1964 meeting of the Southeastern Surgical Congress will be held aboard the *S. S. Hanseatic*. The cruise will begin March 21, sailing from Port Everglades (Fort Lauderdale), Florida, returning to the same port on March 28. Stops will be made at St. Thomas, San Juan and Nassau. Information may be obtained by writing to the Secretary-Director, Dr. A. H. Letton, 340 Boulevard, N.E., Atlanta 12, Ga.

The Southeastern Surgical Congress has 65 members in the District of Columbia. Councilor for D. C. is Dr. Robert J. Coffey, Chief of Surgery at Georgetown University Hospital.

ATTENDANCE WAS EXCELLENT during the scientific sessions of the 31st Annual Scientific Assembly, as this photograph indicates. The scientific meetings were held in the Presidential Ballroom of the Hotel Statler-Hilton, November 18, 19 and 20.

General News

Medical Service of the District of Columbia is sponsoring a new service, Practical Demonstrations for Doctors' Office Assistants, which are designed to inform and instruct doctors' office assistants with respect to the daily working relationship between the doctor's office and Medical Service. The first was presented on January 8 in the GHI Building at 14th and L Streets, N. W. Subsequent Demonstrations will be held on the second Wednesday of each month hereafter. Attendance for each session will of necessity be limited to 25. If more than that number register for a given date, they will be invited to participate at a later session. Demonstrations will be limited to 1 hour, between 2 and 3 in the afternoon.

Speakers and instructors will be Mr. George B. McGovern, Executive Vice President of MSDC; Mr. Arthur Carpenter, Manager, and Mrs. Maha Sigmon, Supervisor, both of the Claims Department; and Mrs. Lorene Williams, Supervisor of Major Medical Plans.

Both experienced office assistants as well as new employees will benefit by participating in the Demonstrations. Officials of Medical Service hope that many physicians will make it possible for their employees to avail themselves of this instruction.

A revised and expanded edition of **"Standards for a Blood Transfusion Service"** has just been published by the American Association of Blood Banks. The work details the Association's requirements for accreditation of hospital and community blood banks. The recommended standards have been accepted by other organizations in the field.

Dr. Mark Falcon Lesses, of Brookline, Mass. is Chairman of the Association's 9-physician Committee on Standards responsible for the edition. Serving on this committee is Dr. Oscar B. Hunter, Jr., Director of the Departments of Pathology at Sibley Memorial and Doctors Hospitals.

Copies of the new edition are available from the American Association of Blood Banks, 30 North Michigan Avenue, Chicago 2, Illinois.

Dr. Judson Randolph has been appointed to a new post, **Surgeon-in-chief, at Children's Hospital.** He came to Washington from Boston, where he was a member of the surgical staffs of Children's Hospital and the Peter Bent Brigham Hospital and a member of the surgical faculty of Harvard Medical School.

Dr. Randolph is a graduate in medicine from Vanderbilt University. He is a diplomate of the American Board of Surgery and of the Board of Thoracic Surgery. He is a Fellow of the American Academy of Pediatrics (Surgical) and of the American College of Surgeons.

DR. LEBENSOHN RECEIVES TOP AWARD: Dr. Zigmond M. Lebensohn (right), who has gained wide recognition in the field of psychiatry and has rendered outstanding service to the Washington community, receives the D. C. Medical Society's Certificate for Meritorious Service, November 19, from President Corley. The presentation was made at the Society's Annual Luncheon, one of the social events of the 3-day Annual Scientific Assembly, held at the Hotel Statler-Hilton.

The Section on Internal Medicine of the Medical Society of the District of Columbia met at the Officers' Club of Walter Reed Hospital, November 12. Dr. Paul F. Jaquet, Chairman, presided at the meeting. Elected to take office, July 1, 1964, were:

Dr. George A. Kelser, Jr., *Chairman;* Dr. Andrew G. Prandoni, *Vice Chairman;* Dr. John J. Hughes, *Secretary;* and Dr. James E. Fitzgerald, *Treasurer.*

Dr. Jaquet was elected to the Executive Committee.

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The Washington, D. C. Chapter of the American Federation for Clinical Research has elected new officers for 1964, namely:

Lt. Colonel Paul Teschan, *President;* Commander Paul D. Doolan, *Vice President;* and Dr. Gerald I. Shugoll, *Secretary-Treasurer.*

Dr. Doolan is also Chairman of the Program Committee.

The University of Maryland School of Medicine Alumni Club for Greater Washington was organized in September, 1963 and held its first meeting in October. A luncheon meeting was held on November 20 in conjunction with the 31st ANNUAL SCIENTIFIC ASSEMBLY of the D. C. Medical Society, and it is planned to make this luncheon an annual event.

The following officers are serving for a term of 2 years:

Dr. Irving Burka, *President;* Dr. Leo T. Brown, *Vice President;* Dr. Gerald D. Schuster, *Secretary-Treasurer;* Drs. S. Charles Jones, Benjamin Isaacson, and James T. Estes, *members of the Executive Committee.*

Graduates of the University of Maryland School of Medicine who are practicing in this vicinity are urged to join the Club and may do so by contacting Dr. Schuster at 1918 K Street, N. W., Washington 6, D. C.; telephone Federal 8-1280.

The hospital ship S. S. Hope began another medical mission, this time to Ecuador, when she sailed from New York City, November 20, and arrived in Guayaquil, December 2.

This is the second voyage of HOPE to South America. It is expected that she will remain in Ecuador 10 months. A staff of 83 doctors, nurses and paramedical personnel were aboard the ship when she left New York. This group comprises the permanent staff of the ship and will remain with the vessel for the duration of its voyage.

The permanent staff is augmented by rotating teams of approximately 30 physicians and dentists who serve for a period of 2 months each.

NICHOLS AWARD TO MR. TALBOTT: Philip M. Talbott (right) was recognized by the Medical Society of D. C. at its Annual Luncheon, November 19, when President Corley presented him with the John Benjamin Nichols Award, which is the Society's annual award to a layman who has made outstanding contributions to the health of the community.

Two Directors of the National Institutes of Health were honored this fall for achievements in their field. **Dr. Robert H. Felix**, Director of the National Institute of Mental Health, **received the Annual Nolan D. C. Lewis Award** for outstanding contributions to psychiatry. The award, presented to him by the New Jersey Neuro-Psychiatric Institute in Princeton, was established 6 years ago by the Board of Managers of the Institute to honor its retiring research director, Dr. Nolan D. C. Lewis. Dr. Felix has been Director of the NIMH since its inception in 1949. He is credited with stimulating psychi-

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atric research throughout the country and promoting new ideas in treatment and rehabilitation of the mentally ill.

Dr. Richard Masland, Director of the National Institute of Neurological Diseases and Blindness, was honored, October 24, when President Kennedy presented to him an **Award of Merit from the National Association for Retarded Children, Inc.,** during its annual convention at the Mayflower Hotel in Washington. He was cited for his contributions as "scientist, humanitarian and pioneer."

George Washington University Hospital has received a grant of $196,000 from the Fannie E. Rippel Foundation of Newark, N. J. The grant will be used to purchase advanced electronic systems for the Hospital's extensive project of investigation and care of patients with cardiovascular disorders.

In 1961 the U. S. Public Health Service established an Instrumentation Field Station of its Heart Disease Control Program as part of the University Hospital. The new funds will make it possible for the staff to improve the monitoring of surgical patients in the operating and recovery rooms by using complex electronic equipment; also to develop and test new equipment that will provide additional physiologic measurements for more complete monitoring of patients with cardiovascular disease. The purpose of this phase of the project will be to minimize the risk of operating procedures, with special recognition of the increasing application of surgery in the elderly patient with heart disease and the young patient with congenital and rheumatic heart disease.

Personals

Dr. William B. Walsh, Founder and Director of Project HOPE, received the first Thanksgiving Award of Clarke College in Dubuque, Iowa, November 26. Clarke College established the Thanksgiving Award this year on the centenary of the First Thanksgiving Proclamation, issued by President Abraham Lincoln in 1863. The Award is conferred by the College on "an American whose life reveals awareness of the blessings of freedom, opportunity, and dignity insured by the Constitution of the United States, and whose service to the country and its citizens merits recognition."

Dr. C. Willard Camalier, Sr. was paid high tribute by his colleagues at the 104th Annual

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Session of the American Dental Association, held in Atlantic City, N. J., October 14–17. Dr. Camalier was recognized for his many contributions to dentistry and for his accomplishments during the more than 40 years of devoted service to ADA. On June 30, 1963, he retired from the directorship of the Washington office of ADA, but continues as Director Emeritus. He is Past President of the American Dental Association and has served the Association in many other capacities.

At the recent meeting President Timmons read a citation by the Association and awarded him an honorary membership certificate and a certificate of appreciation signed by the living past presidents of the Association. In addition, both he and Mrs. Camalier were presented handsome gifts. Dr. Camalier has been an Associate member of the Medical Society of the District of Columbia since 1932.

Dr. Oscar B. Hunter, Jr. was elevated to the position of Chairman of the Council of the Southern Medical Association at the 57th Annual Meeting in New Orleans, November 18–21. Dr. Hunter served during the past year as Vice Chairman of the Council, which is the executive committee of SMA.

ROBINS AWARD TO DR. CORNELY: Dr. Paul B. Cornely (left) expresses pleasure at receiving from President Corley the A. H. Robins Company Award in recognition of his service to the community. The award was presented to him, November 19, at the Annual Luncheon of the D. C. Medical Society.

Dr. J. Spencer Dryden was reëlected Vice President of the National Medical Foundation for Eye Care at the Annual Meeting of the Foundation's Board of Trustees in New York City, October 20. Dr. William B. Clark, of New Orleans, was reëlected President.

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Dr. James N. Greear, Jr., of Reno, Nevada, was reëlected Trustee for a 3-year term. Dr. Greear is a Past President of the D. C. Medical Society and continues his affiliation with the Society as an Associate member.

Dr. John C. Ransmeier has accepted a position with the Veterans Hospital in Oteen, North Carolina. Formerly head of the Medical Department of Alexandria (Va.) Hospital, he has practiced in Alexandria and Washington since 1951. He is an Associate member of the D. C. Medical Society.

Dr. Clifton R. Brooks was recognized for his work in Boy Scouting, December 2, by the Boy Scout unit of Concord Methodist Church, Bethesda, Md. For his 3½ years of service as a neighborhood commissioner, who is responsible for the activities of 3 to 5 Scout units, he was awarded a Commissioner's Key. Dr. Brooks is now devoting his spare time to the Sea Explorers, a branch of the Boy Scouts.

Dr. Julius S. Neviaser is one of the founders and a member of the Board of Directors of the new Madison National Bank which opened for business on Monday, December 2, at 1730 M Street, N.W.

At the meeting of the Committee on Credentials of the American College of Physicians in Philadelphia, November 9, the following members of the D. C. Medical Society were elected to fellowship: **Drs. Arthur Burgerman, Thomas E. Curtin, Samual D. Loube, Robert R. Montgomery, and Howard E. Ticktin.**

Elected Associates in the College were **Drs. Habeeb Bacchus, Forest K. Harris, Marshall H. Jacobson, Jack Kleh, Rashid A. Massumi, and Richard B. Perry.**

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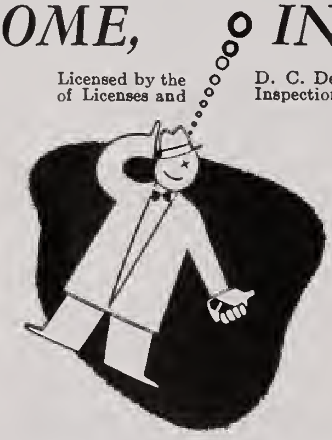

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Obituaries

Isaac Solomon Grisoff, M.D.

(1899-1963)

Dr. Isaac S. Grisoff, an Active member of the D. C. Medical Society, died, November 1, 1963, at the Washington Hospital Center following a brief illness.

Dr. Grisoff was born in Russia, July 22, 1899. He received his early education in Canada and graduated from the University of Alberta School of Medicine in 1929. He interned at Misericordia Hospital in Edmonton, Alberta, and practiced the next 11 years in Saskatchewan Province and Montreal.

He moved to Washington in 1941, practicing in the District and in the suburbs for more than 20 years. His offices were located most recently at 4500 Connecticut Avenue, N.W. He was on the staffs of the Washington Hospital Center, George Washington University Hospital, and the Washington Highlands Clinic.

Dr. Grisoff was elected to membership in the D. C. Medical Society in 1947. He was also a member of the American Medical Association, the American Heart Association, and the Jacobi Medical Society. He was a Mason and a member of the B'nai Israel and Kesher Israel Synagogues.

Surviving him are his wife, Mrs. Ruby R. Grisoff, of the home address, 1448 Primrose Road, N.W., and a son, Stephen F., of Boston, Mass. He is also survived by a brother, Mark S. Grant, of Fort Lee, N. Y., and three sisters living abroad.

David Eastburn Buckingham, V.M.D.

(1870–1963)

Dr. David E. Buckingham, who had a long and notable career in the field of veterinary medicine, died, November 5, 1963, at his home at the Kennedy Warren Apartments, 3133 Connecticut Avenue, N.W.

Dr. Buckingham was a native of Wilmington, Delaware, where he was born, March 21, 1870. He graduated from the School of Veterinary Medicine, University of Pennsylvania, in 1893. At 93 years he was the School's oldest living graduate.

In 1893 he established what is now the Hospital for Animals. He tested dairy herds in the Washington milkshed for tuberculosis, and his findings were instrumental in establishing dairy herd inspection for the District.

During the Spanish-American War and World War I he served as an inspector and contract veterinarian for the Army. He was also Chairman of the Military Affairs Committee of the American Veterinary Medical Association during World War I, and he was instrumental in obtaining a commissioned rank for Army veterinarians.

In 1907 Dr. Buckingham established the District's first Board of Examiners in veterinary medicine. As first president of the Board, he assisted in writing the Veterinary Practices Act. His license was the first issued by the Board.

He founded the School of Veterinary Medicine at George Washington University in 1908 and for the next 10 years served as its dean and as Professor of Veterinary Medicine.

He was appointed White House veterinarian in 1915 and served in that capacity for 25 years. Among his famous canine patients was President Roosevelt's Scots terrier, Falla.

He was also consulting veterinarian to the National Zoölogical Park. However, dogs were his principal veterinary interest. He traveled and studied in Europe to learn the cause and treatment of distemper. In 1928 he was sent to Labrador to inspect and choose huskies for the first Antarctic expedition of Admiral Byrd.

Dr. Buckingham retired from active practice in 1957.

He was an Associate member of the Medical Society of the District of Columbia from 1931 until his death. He was a Mason for more than 60 years and a member of the Washington Rotary Club. He was an active member of St. Alban's Episcopal Church.

His wife, Roberta Randall Buckingham, died in 1960. He leaves 4 sons: Dr. Richard G. Buckingham, also a veterinarian, of Rockville, Md.; D. Randall Buckingham, of Washington, D. C.; Wells S. Buckingham, of Derwood, Md.; and Donald Buckingham, of Los Angeles, Calif. He also leaves a sister, Miss Florence P. Buckingham, of Washington, D. C.

Leo Victor Schneider, M.D., M.P.H., F.A.C.P.

(1890–1963)

Dr. Leo V. Schneider, who was Chief Medical Officer of Glenn Dale Sanatorium, Glenn Dale, Md., for many years, died November 12, 1963, at the Veterans Administration Hospital in West Haven, Conn.

Dr. Schneider was born in Russia, June 15, 1890. After completing his undergraduate studies at St. Petersburg Gymnasia in St. Petersburg, he enrolled at Donskey University School of Medicine, receiving his medical degree in 1920. He was also certified by the Moscow University School of Medicine in 1922. He earned the degree, Master of Public Health, from Johns Hopkins University School of Hygiene and Public Health in 1933–34.

Dr. Schneider came to the United States and interned at Hartford, Conn., in 1924–25. He was resident physician at the Maryland State Sanatorium from 1925 to 1930. In 1934 he became resident physician at Glenn Dale Sanatorium, and 3 years later was appointed Chief Resident Physician. He continued his work at Glenn Dale until World War II, when he enlisted in the Army Medical Corps. He was commissioned Major, later Lieutenant Colonel, and served with the U. S. Military Government in Germany.

After the War Dr. Schneider returned to Glenn Dale. Later he joined the Veterans Administration to serve in the field of tuberculosis control. He moved from Washington to New York in 1959.

For many years he was on the faculty of Georgetown University School of Medicine as Associate Clinical Professor of Medicine.

Dr. Schneider was an Associate member of the Medical Society of the District of Columbia from 1940 to 1959. He was certified by the American Board of Internal Medicine. He was a Fellow of both the American College of Physicians and the American College of Chest Physicians. He was a member of the Trudeau Society, the National Tuberculosis Association, the Baltimore City Medical Society, and the Medical and Chirurgical Faculty of Maryland.

Surviving him are his wife, Dr. Rebecka Schneider, and a son, Alan Schneider, of New York City.

Chronic Subdural Hematoma—Jakoby

(*Continued from page 8*)

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Current Concepts in Infectious Diseases—Martin

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Greenbrier Conference—Fraser and Coleman

(*Continued from page 29*)

eventually register 50,000 births for prospective follow-up. Papers on congenital defects, malformations, and mental retardation problems summarized current feelings but presented no new material.

This report will be considered at the next meeting of the Subcommittee on Child Welfare.

Allan B. Coleman, M.D.
Chairman, Subcommittee on Child Welfare

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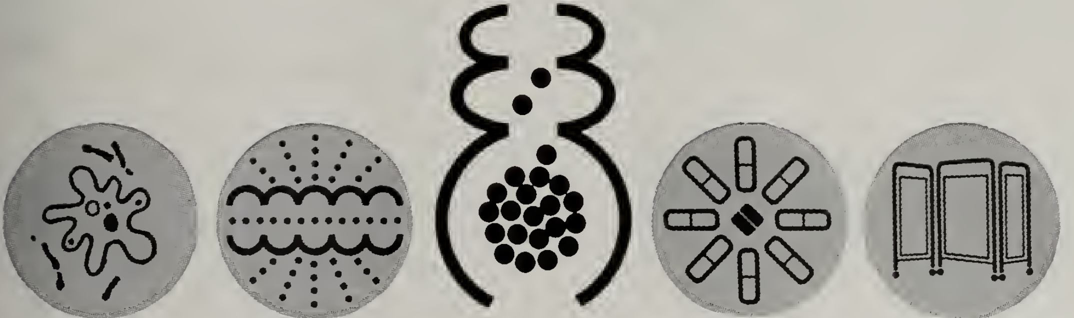

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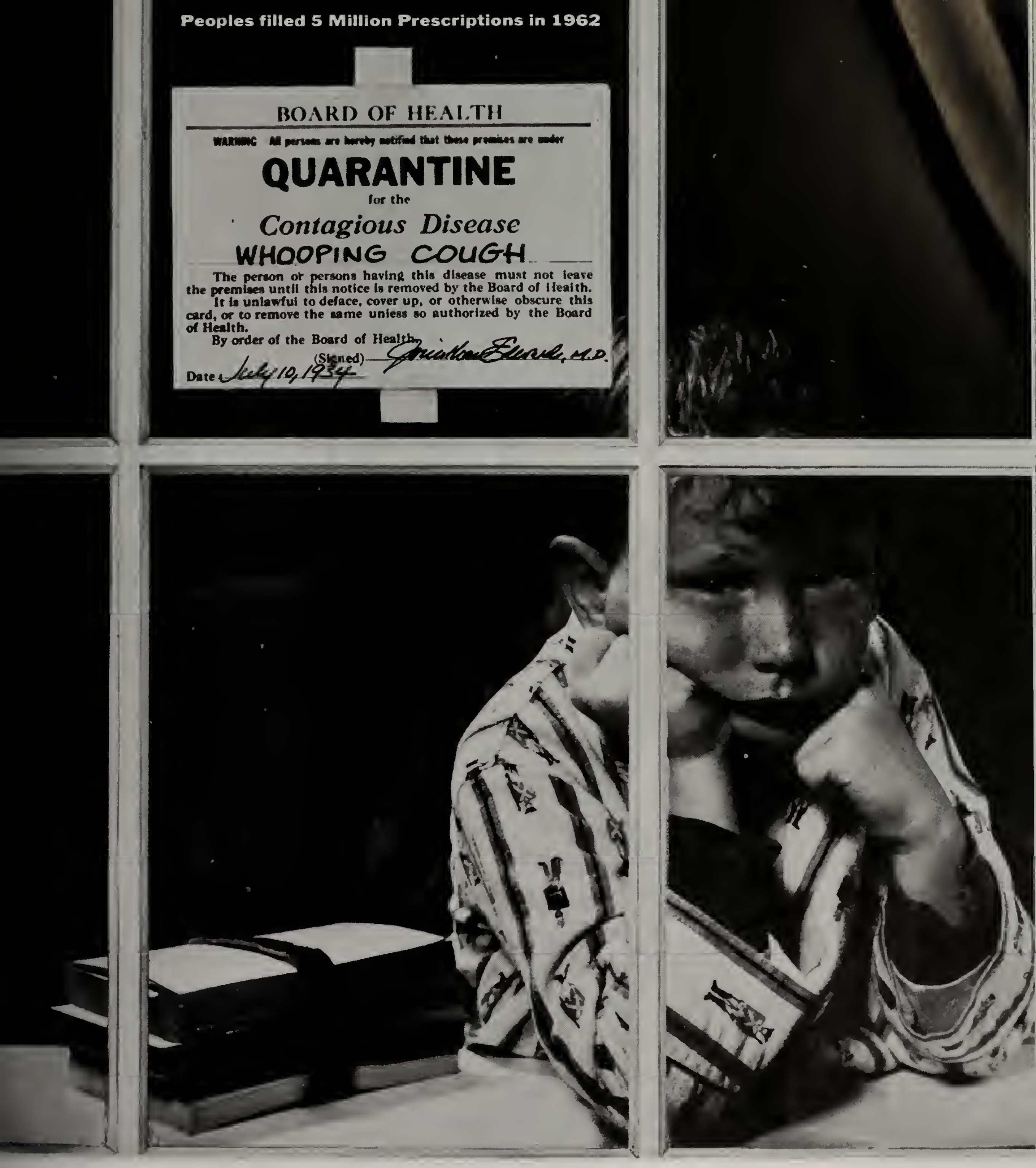
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BOOK REVIEWS

Diseases of the Skin: For Practitioners and Students, 5th ed. George Clinton Andrews, M.D., F.A.C.P., and Anthony N. Domonkos, M.D., F.A.C.P. Price, $16.50. Pp. 749, with 605 illustrations. Philadelphia: Saunders, 1963.

Like previous editions, the fifth edition of Andrews' "Diseases of the Skin," co-authored by Dr. Domonkos, is a classic in clinical dermatology. It has been greatly enlarged and now has 749 pages. The illustrations are excellent; 265 new ones have been added and of these 15 are full-page pictures.

The completeness of the text may be judged from the fact that the subjects range alphabetically from abiotrophy to Zumbush psoriasis. The diseases range from chigger bites to congenital telangiectatic erythema resembling lupus erythematosus in Lorain-Levid warfs. There are 56 syndromes listed by their proper names (eponyms) as compared with 22 listed in a recent comparable text. In view of this it is enthusiastically recommended for the graduate student in dermatology.

There are many outstanding chapters which could well be read by dermatologists and many other physicians. The chapters on Contact Dermatitis and on Dermatitis Due to Drugs should have wide appeal. These dermatitides are on the increase and are seen by almost all practitioners of medicine.

Likewise the chapter on Syphilis is recommended. This disease has returned to the halls of private practice and all too often its diagnosis is missed just because the physician didn't think about syphilis. The 20 well-illustrated pages offer a quick and efficient review which every practicing physician and dentist could peruse with profit.

The chapters on Connective Tissue Disease, on Endocrine Disease, on Errors of Metabolism and Diseases of the Cutaneous Blood Vessels should have a special appeal to the internist as well as the dermatologist. The internist of today must be aware of the dermatologic manifestations of these diseases and these manifestations are well described.

The pediatrician should find the chapters on Genodermatoses, the sections on Atopic Dermatitis and on Nevi interesting and instructive.

Drs. Andrews and Domonkos, as would be expected of writers who are in actual practice, stress therapy and principles of therapy. While not every form of therapy offered in the text can be unqualifiedly recommended, it can be said that the therapies offered are generally sound and the precautions are particularly worth remembering. The authors stress the cautious use of steroids in dermatology, as well as other powerful drugs like aminopterin, anthralin, and the psoralins. In general, it may be said their advocated therapy is conservative and effective.

The only suggestion that I might offer would be to enlarge the coverage of dermal histopathology. Perhaps more histopathologic illustrations and more text about skin pathology could be included in the next edition.

In conclusion, Andrews and Domonkos' text on dermatology is unhesitatingly recommended to any physician who, as stated in the author's preface, "wishes to possess an understanding of diseases of the skin," and he will find "current information about all cutaneous diseases."

Raymond Allen Osbourn, M.D.

Clinical Metabolism of Body Water and Electrolytes. John H. Bland, M.D., and 21 Contributors. Price, $16.50. Pp. 623, illustrated. Philadelphia: Saunders, 1963.

A rather comprehensive monograph on this complex subject, it was designed to bridge the gap between basic investigation and bedside medicine. There is considerable basic information which makes the book useful as a reference, but often the clinical recommendations are somewhat arbitrary. The first 8 chapters (225 pages) approach the problem generally. These are followed by specific sections dealing with particular aspects of fluid and electrolyte metabolism, e.g., congestive heart failure, pediatric aspects, surgical factors, and the relation to the central nervous system.

With 22 contributors, the subject is presented from many aspects, but this multiple-author approach leads to some repetition and overlap, adding unnecessary length to the text. In some areas the subject is made too complex, but generally the presentations and illustrations are clear. The text is quite up-to-date in most areas and has an abundance of references after each chapter. Notable by its lack of emphasis is the role of diuretic therapy in the genesis of fluid and electrolyte abnormalities. This book, far superior to its earlier, simpler editions, is recommended as an outstanding monograph among the many that have recently appeared on this subject.

John F. Maher, M.D.

Medical Department, United States Army: Personnel in World War II. Colonel John Boyd Coates, Jr., M.C., Editor-in-Chief; Charles M. Wiltse, Ph.D., Litt. D., Editor for Personnel. Prepared and published under the direction of Lieutenant General Leonard D. Heaton, The Surgeon General, United States Army. Price, $6.00. Pp. 548, with 40 illustrations, 68 tables, 7 charts. Washington 25, D. C.: Superintendent of Documents, U. S. Government Printing Office, 1963.

This illustrated volume dealing with the personnel of the Medical Corps of the United States Army is one of a series on the history of the Medical Department during World War II. It is a complete statistical and analytical review of the Administrative Command from the Surgeon General down through the various grades, both at home and overseas. Because of its nonprofessional content it holds little interest for the

(Continued on page 32)

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Contraindications. While the only absolute contraindications are tuberculosis and herpes simplex, there are some relative contraindications (peptic ulcer, glomerulonephritis, myasthenia gravis, osteoporosis, fresh intestinal anastomoses, diverticulitis, thrombophlebitis, psychic disturbance, pregnancy, infection) to weigh against expected benefits.

While no steroid can *cure* a susceptible disorder, many patients who would otherwise be confined in a state of invalidism have, on ARISTOCORT® Triamcinolone, been able to pursue active, useful lives.

References: 1. Levine, R.: Rationale for the Use of Adrenal Steroids, Paper presented at Annual Convention, Medical Society of the State of New York, New York, May 13-17, 1963. 2. Hollander, J. L.: Clinical Use of Dexamethasone. *JAMA 172*:306 (Jan. 23) 1960. 3. Boland, E. W.: Chemically Modified Adrenocortical Steroids. *JAMA 174*:835 (Oct. 15) 1960. 4. McGavack, T. H.: The Newer Synthetic Adrenocortical Steroids in Therapy. *Nebraska Med. J. 44*:377 (Aug.) 1959. 5. Freyberg, R. H.: Berntsen, C. A., Jr., and Hellman, L.: Further Experiences with Δ1, 9 Alpha Fluoro, 16 Alpha Hydroxyhydrocortisone (Triamcinolone) in Treatment of Patients with Rheumatoid Arthritis. *Arthritis Rheum. 1*:215 (June) 1958. 6. Cahn, M. M. and Levy, E. J.: Triamcinolone in the Treatment of Dermatoses. *Amer. Practit. 10*:993 (June) 1959. 7. AMA Council on Drugs: New and Nonofficial Drugs. *JAMA 169*:255 (Jan. 17) 1959. 8. McGavack, T. H.; Kao, K.-Y. T.; Leake, D. A.; Bauer, H. G., and Berger, H. E.: Clinical Experiences with Triamcinolone in Elderly Men. *Amer. J. Med. Sci. 236*:720 (Dec.) 1958. 9. Fernandez-Herlihy, L.: III. Use and Abuse of Corticosteroid Therapy—The Structure and Biologic Activity of the Corticosteroid Hormones and ACTH, *Med. Clin. N. Amer. 44*:509 (Mar.) 1960. 10. McGavack, T. H.: Triamcinolone: A Potent Anti-inflammatory Sodium Excreting Adrenosteroid. *Clin. Med. 6*:997 (June) 1959.

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Book Reviews

(*Continued from page 28*)

average civilian practitioner of medicine but it is a must for the Military Medical Officer looking toward administrative command.

This book contains a tremendous amount of research with numerous statistical tables illustrating and describing administrative procedures as they developed from a peacetime corps to a war strength of 700,000 personnel.

Faced with the responsibility of the health and care of the Army, the Surgeon General found himself under a severe handicap of complete control. He was always subjected to supervision by the General Staff, other agencies, and even at times by pressure from Congress. To a lesser degree but definitely following precedent Medical Units all down the line were dominated by Service Commands. To the many doctors who served under this dual command system this book may offer some solace. Also they will find the background for the many trials and tribulations through which they served.

The supreme effort to obtain and build up personnel of doctors, dentists, veterinarians, pharmacists, nurses, enlisted men and women and then to organize, administer, distribute, promote, pay, deploy and finally to demobilize all units was a gigantic task carried out under the stress and strain of war.

The two Surgeons General of the war period, Generals James C. Magee and Norman T. Kirk, both Honorary members of the District of Columbia Medical Society, met the challenge of their high office with courage and fortitude.

Lessons to be learned from this exhaustive study should yield corrective results for the future.

Daniel L. Borden, M.D.

Atlas of Vascular Surgery. Falls B. Hershey, M.D., F.A.C.S., and Carl H. Calman, M.D., F.A.C.S. Illustrated by Kathryn Murphy and William R. Schwartz. Price, $18.00. Pp. 307, with 77 illustrations. St. Louis: Mosby, 1963.

The Atlas of Vascular Surgery written by Falls B. Hershey, M.D., and Carl H. Calman, M.D., follows precisely the plan outlined by the authors in the preface, "to interest residents as well as practicing surgeons in the methods and techniques of vascular surgery." Further, the applications and limitations of vascular operations are clearly stated.

The organization of the text is sequential beginning with a brief historical review, a reëmphasis of basic surgical principles and techniques generally and specifically as they apply to vascular surgery, an outline of specific instruments found useful by the authors, and a brief statement of physical laws of fluid flow and their application to vascular surgery.

There follows then detailed descriptions of preoperative diagnostic techniques including all materials necessary for these studies and line drawings demonstrating many of the techniques used. There is also demonstrated forms on which to record results of diagnostic studies.

The next chapters are devoted to a brief description of pertinent facts related to specific conditions such as abdominal aneurysm, aorto-iliac occlusive disease, occlusive disease in the leg and popliteal aneurysm, embolic disease, arterial injuries to visceral branches of the aorta, cerebral arterial insufficiency, and portal hypertension. Detailed surgical techniques are outlined for the surgical management of these conditions. The pre- and postoperative evaluation and treatment are outlined and pertinent comments related to surgical procedures are included.

The final chapters are devoted to discussions and techniques of various types of sympathectomies, surgical anatomy and techniques of exposure of vessels of the upper extremity and the superior mediastinum, evaluation and treatment of varicose veins and thrombophlebitis, and sites and techniques of amputations of the lower extremity.

The appendix includes line drawings of recommended Buerger-Allen exercises and a detailed listing of instruments and materials for all preoperative work-up and operative procedures.

These authors leave nothing to your imagination. They spell out all details. The line drawings are most helpful. The illustrations add considerably to the value of the text.

The book is definitely recommended for the resident and the surgeon doing vascular surgery.

Erman W. Edgecombe, M.D.

Ciba Foundation Study Group No. 13. Resistance of Bacteria to the Penicillins. A. V. S. de Reuck, M.Sc., D.I.C., A.R.C.S., and Margaret P. Cameron, M.A., Editors for the Ciba Foundation. Price, $2.95. Pp. 125, with 14 illustrations. Boston: Little, 1962.

This booklet presents the proceedings of the thirteenth Study Group of the Ciba Foundation, which was held in London in February, 1962, in honor of Sir Charles Harrington, Director of the National Institute for Medical Research of London. Five formal papers, each followed by a discussion, and 1 general discussion session are presented. Discussion by the 22 scientists in attendance, who included not only physicians but bacteriologists, chemists and geneticists from 7 different countries, brings up-to-date the present thinking in regard to penicillin. Although Fleming made his famous observation in 1929, penicillin did not become available for widespread therapeutic use until after 1946. The discussants described the various types of penicillin, its mode of action, and penicillinase (the penicillin-destroying enzyme) so that the resistance of bacteria to the penicillins can be more readily understood.

The presentations and discussions could readily be

(*Continued on page 34*)

NEW AND FORTHCOMING BOOKS

THE THYROID AND ITS DISEASES by **James H. Means, M.D.**, Jackson Professor of Medicine Emeritus, Harvard Medical School; Chief of Medical Services Emeritus, Massachusetts General Hospital; **Leslie J. DeGroot, M.D.**, Associate in Medicine, Harvard Medical School, Medical Service and Thyroid Clinic, Massachusetts General Hospital; **and John B. Stanbury, M.D.**, Associate Clinical Professor of Medicine, Harvard Medical School, Medical Service and Thyroid Clinic, Massachusetts General Hospital.

This third edition of a classic work continues the chronicle of one of the most noted centers of thyroid study and treatment—the Thyroid Clinic of Massachusetts General Hospital. Actual case histories are described in detail, and the book combines both theory and practice in a unified approach to thyroid diseases.

Published by Blakiston Div., McGraw-Hill *576 pages* **$15.95**

BIOCHEMICAL FINDINGS IN THE DIFFERENTIAL DIAGNOSIS OF INTERNAL DISEASES, edited by **Rudolf Schoen,** Ordinary Professor of Internal Medicine, Director of the Medical Clinic, University of Gottingen, Germany; **and Heinrich Sudhof,** Extramural Professor of Internal Medicine, University of Gottingen, Germany.

This profusely detailed volume sets out to assist clinician and surgeon in the assessment of biochemical analysis as aids to the differential diagnosis of internal diseases. While the work is not primarily concerned with the actual conduct of diagnostic techniques, those proven methods which have yet to become matters of routine in the smaller laboratory are fully treated with respect to specimen preparation, preservation and dispatch.

Published by American Elsevier Publishing Co. *436 pages* **$20.00**

YOUR HEART HAS NINE LIVES by **Jeremiah Stamler, M.D.,** Director of the Heart Disease Control Program, Chicago Board of Health; **and Alton L. Blakeslee,** Science Editor for the Associated Press and winner of the Lasker Award in 1962 for Medical Journalism.

A heart research specialist and a medical science writer reveal the latest medical knowledge for the prevention and treatment of heart disease. The nine lives of the heart correspond to the nine known risk factors a person can either do or not do something about. This clearly detailed, authoritative report presents a program to help prevent or correct these factors, and gives convincing reasons for following it.

Published by Prentice-Hall, Inc. *288 pages* **$4.95**

THE COMPLICATIONS OF MODERN MEDICAL PRACTICES by **David M. Spain, M.D.,** Clinical Professor of Pathology, State University of New York; Pathologist, Beth-El Hospital, Brooklyn, N. Y.

Iatrogenic Diseases is the theme of this challenging new book. It is not a treatise on malpractice or a syllabus of errors. Rather, it is a highly intelligent and perceptive survey of the myriad complications which can arise through the performance of the most respectable and accepted diagnostic or therapeutic services by highly conscientious practitioners.

Published by Grune & Stratton, Inc. *360 pages* **$12.75**

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Book Reviews

(*Continued from page 32*)

followed by this reviewer (a practicing physician) and offered procedures of practical value not only to the "embattled physician who finds himself in the middle of the night with a patient who has a galloping pneumonia which he suspects might be staphylococcal and which he has no way of identifying as being penicillin-resistant or not" (use methicillin and another antibiotic as well), but especially to those concerned with the resistant staphylococcal problem in the hospital. Controlling the environment, thus preventing the evolution of undesirable genotypes, consists of 4 steps. First, control cross-infection. Second, restrict the use of antibiotics to those cases in which sensitivity tests indicate that their use is likely to be successful. Third, do not use drugs to which resistance can be acquired in the treatment of local, open infection. Fourth, use 2 or more drugs in combination to prevent the evolution of double resistance, as has proved so successful in the treatment of tuberculosis.

The participants conclude by decrying the indiscriminate use of small, usually ineffective doses of penicillin, especially as included in chewing gum, lozenges and the like. These small doses more readily induce the formation of the enzyme, penicillinase, and thus destroy the possibly more effective doses of penicillin. They emphasize that penicillinase-resistant penicillin should be reserved for the treatment of serious penicillin-resistant infections. Finally, they allay the fears of the "prophets of doom" (among them, Fleming) who foresaw the development of bacteria resistant to penicillin and predicted the development of new chemical types to destroy the resistant strains that occur.

Ellis April, M.D.

Handbook of Orthopaedic Surgery, 6th ed. Alfred Rives Shands, Jr., M.D., F.A.C.S., and Richard Beverly Raney, B.A., M.D., F.A.C.S., with the collaboration of H. Robert Brashear, B.A., M.D., F.A.C.S. Price, $11.50. Pp. 591, with 277 illustrations and a bibliography. St. Louis: Mosby, 1963.

"Handbook of Orthopaedic Surgery" by Dr. Shands et al reflects, both in its careful organization and its erudite contents, a thoughtful definition of orthopedic problems and practices based upon the accumulated experience and knowledge of the authors. Clear, interesting and concise, this book should prove useful not only to the practicing orthopedic surgeon but even more so to the members of allied specialties, such as pediatricians, internists, and general practitioners. Medical students and residents will also find it helpful.

Especially outstanding are the chapters on Congenital Deformities, General Affections of the Skeleton, and Neuromuscular Disabilities. Etiology, pathology and treatment are adequately covered. The section on Bone Tumors is, of necessity, too short and incomplete.

As a title, "Handbook of Orthopaedic Surgery" is somewhat deceptive in that this study is more detailed and of greater scope than one anticipates in a "handbook." Dr. Shands has done an excellent job in presenting a thorough and up-to-date contribution to orthopedic literature.

Stanford A. Lavine, M.D.

Cancer of the Female Reproductive Organs. Alfred I. Sherman, M.D. Illustrated by Elisabeth North. Price, $13.75. Pp. 338, with 70 illustrations. St. Louis: Mosby, 1963.

Following an elementary discussion of the composition of matter, isotopes, radiation half-life, ionization, and the other factors related to radiation therapy, the author embarks on a detailed discussion of genital and placental cancer. He presents the histology, etiology, symptomatology, diagnosis and treatment of each type of cancer in a thorough and systematic fashion, which renders the text a ready source of specific information or reference material. His radiotherapeutic considerations of cervical and fundal cancers are the most detailed and constitute the text's greatest asset.

The book is recommended for residents in radiology and obstetrics and for those who treat pelvic malignancies.

Earl D. Neslen, M.D.

Ciba Foundation Symposium on Transplantation. Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P., and Margaret P. Cameron, M.A. Price, $12.00. Pp. 426, with 71 illustrations. Boston: Little, 1962.

This volume contains the edited résumé of 16 papers presented at the CIBA Symposium on Transplantation in London in 1961.

Since the War, and more particularly during the last 10 years, rapid advances have been made in the field of transplantation. The 30 contributors attending this Symposium review some of these advances and speculate on their significance.

In the papers presented 2 wholly new concepts emerge: one, the crucial importance of the thymus in the development of immunologic reactivity; the other, the possibility that newborn mice can be sensitized.

Each paper is followed by a pointed discussion which quite often is as interesting as the paper itself. While the majority of the material presented has no clinical application and represents basic research, the volume is recommended to those interested in transplantation.

The participants lacked an important member, Alfred Gorer, whose classic work laid so much of the foundation for progress in the field.

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January 30–31: Symposium on Scintiscanning in Clinical Medicine. Department of Radiology, Bowman Gray School of Medicine, Winston-Salem, N. C. Address: Dr. J. L. Quinn III, Nuclear Medicine, Bowman Gray School of Medicine, Winston-Salem 7, N. C.

February 29–March 5: International Academy of Proctology. Deauville Hotel, Miami Beach, Fla. Address: Dr. A. J. Cantor, 147–41 Sanford Avenue, Flushing 55, N. Y.

March 1–6: 20th Annual Congress of American College of Allergists. The Americana, Bal Harbour, Miami Beach, Fla. Address: Dr. John D. Gillaspie, *Treasurer*, 2141 14th Street, Boulder, Colo.

April 1–3: American Surgical Association. The Homestead, Hot Springs, Va. Address: Dr. W. A. Altemeier, *Secretary*, Cincinnati General Hospital, Cincinnati 29, Ohio.

April 3–5: American Association of Pathologists and Bacteriologists. Drake Hotel, Chicago. Address: Dr. John R. Carter, *Secretary-Treasurer*, University of Kansas Medical Center, Kansas City 3, Mo.

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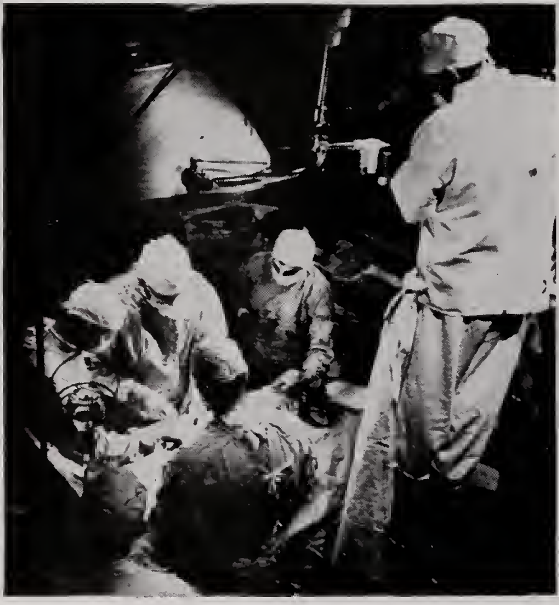

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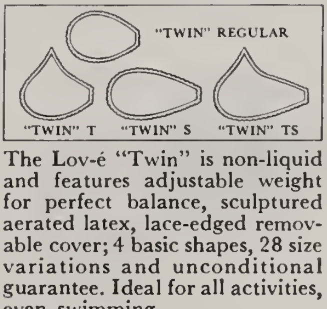

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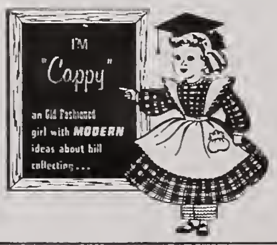
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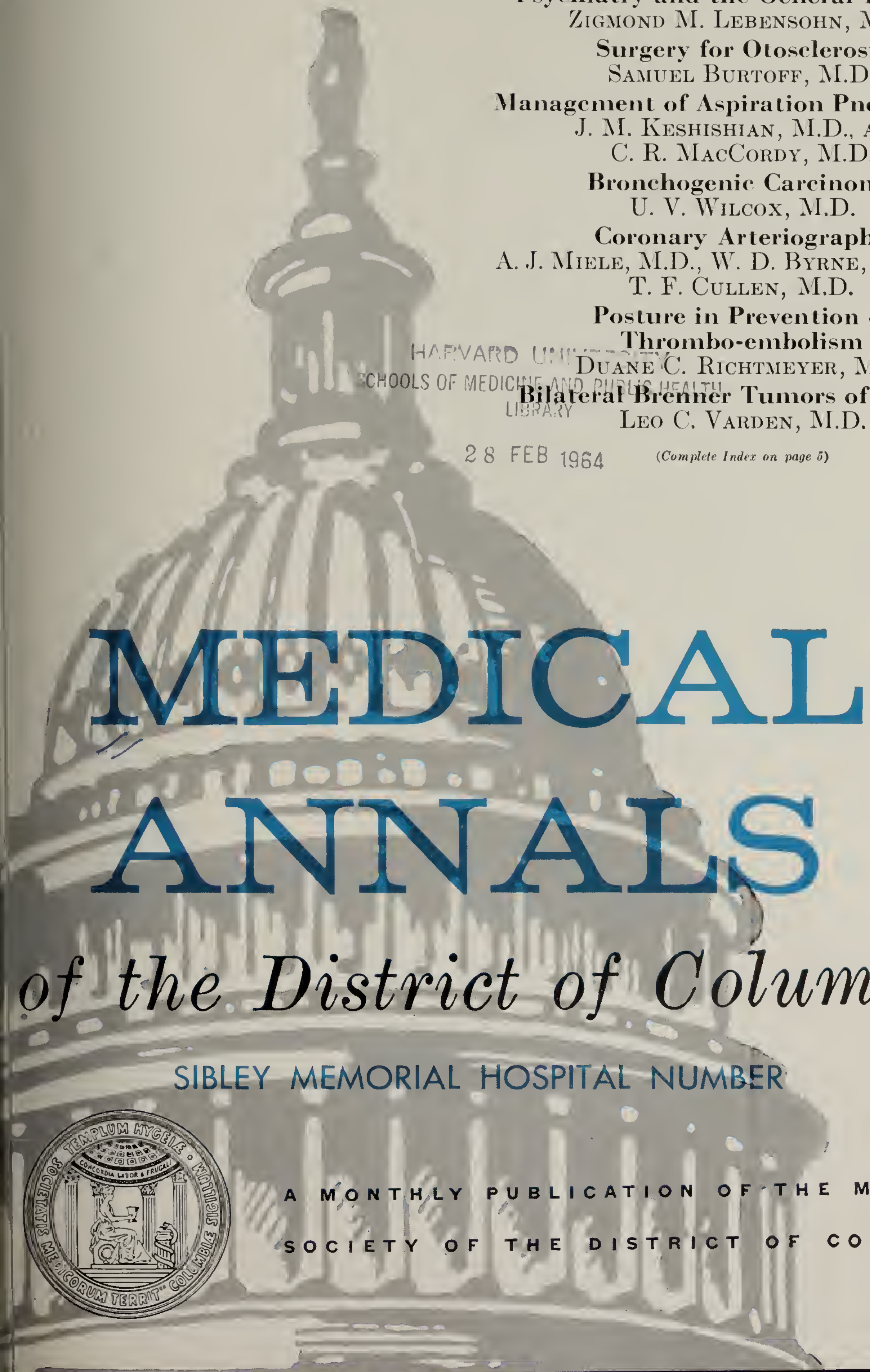

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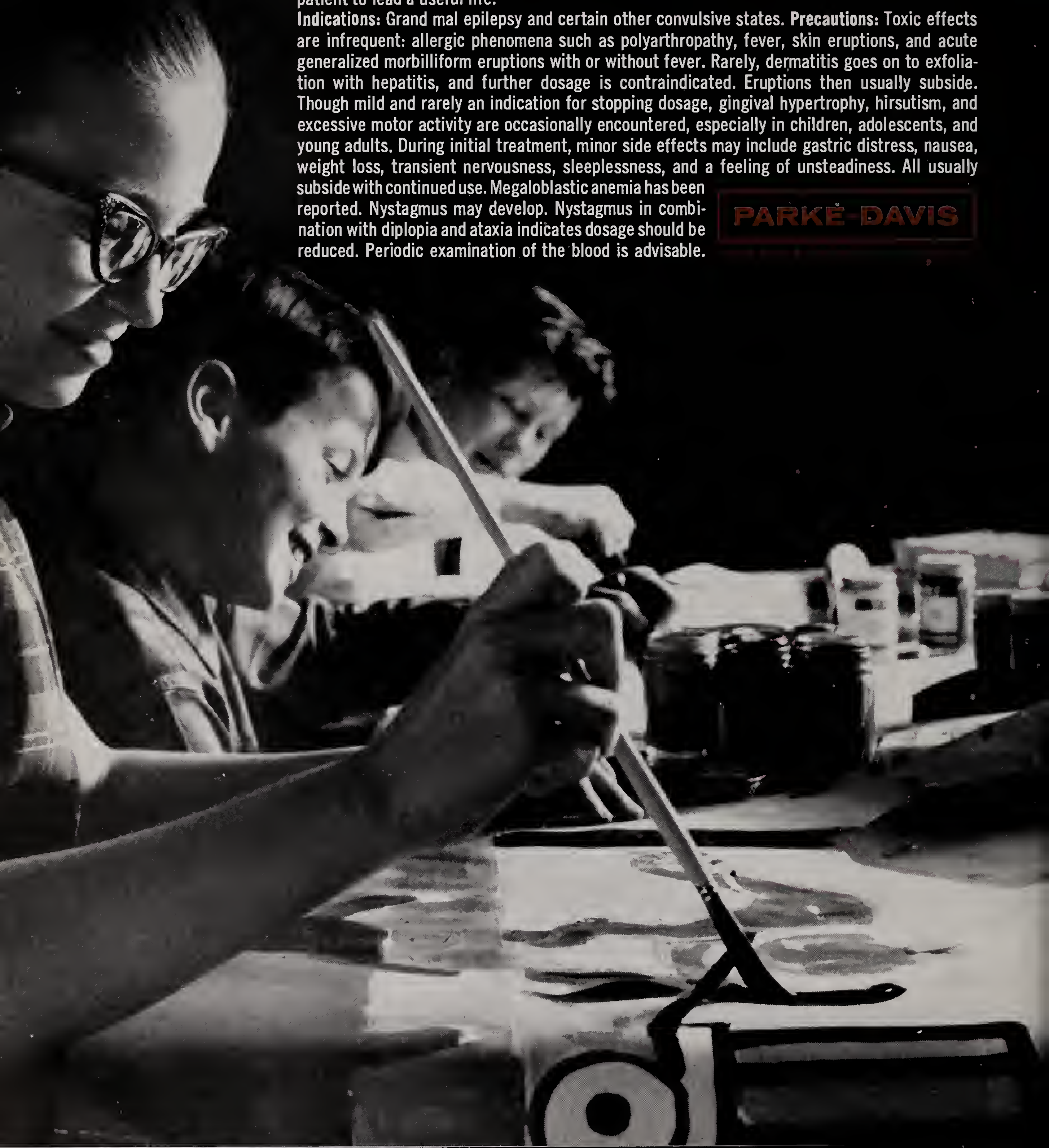

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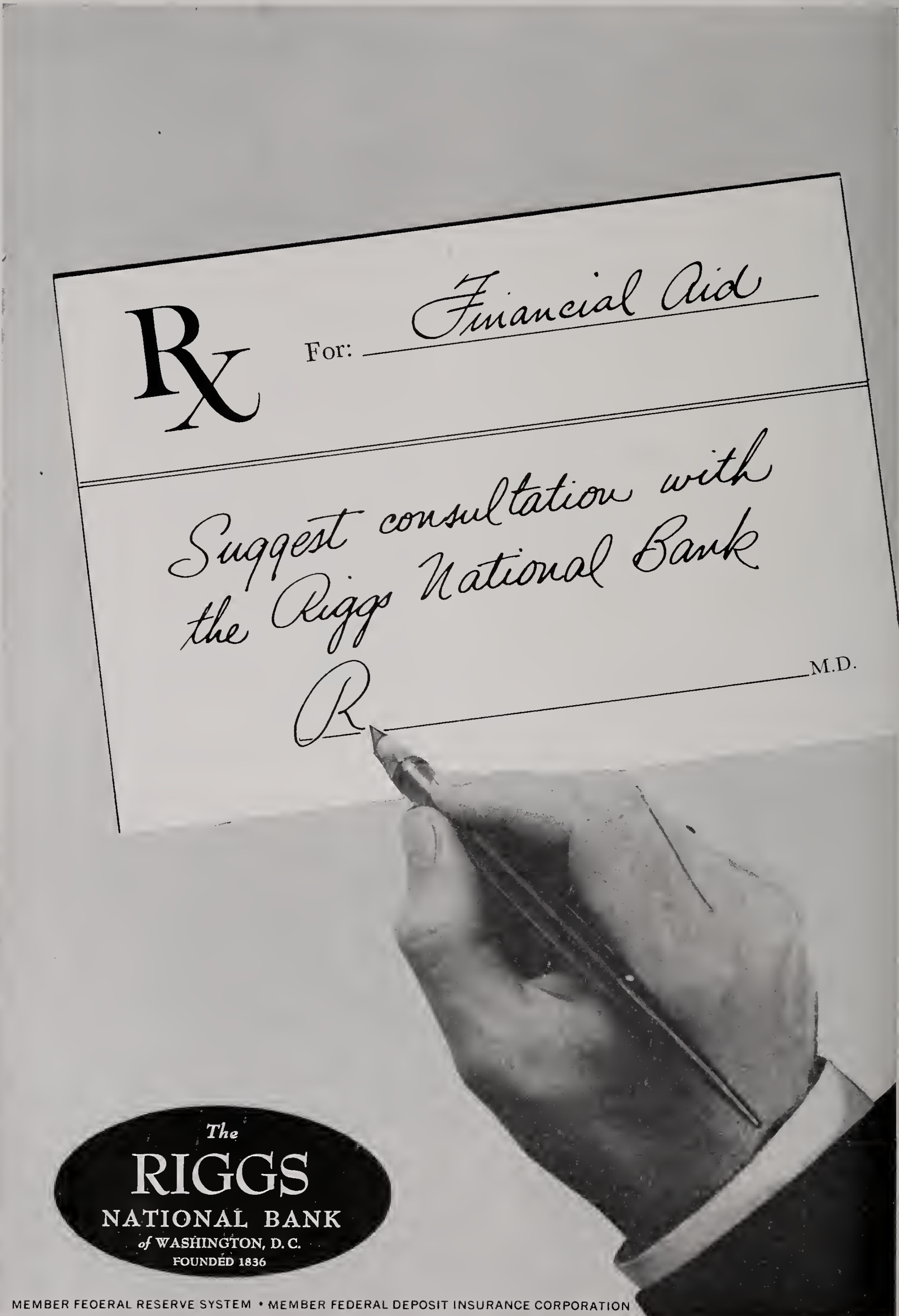
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Yearly Subscription, $4.50
Single Number, 50¢

Second-class postage paid at Baltimore, Md.
Published monthly at
Mount Royal and Guilford Avenues,
Baltimore 2, Maryland

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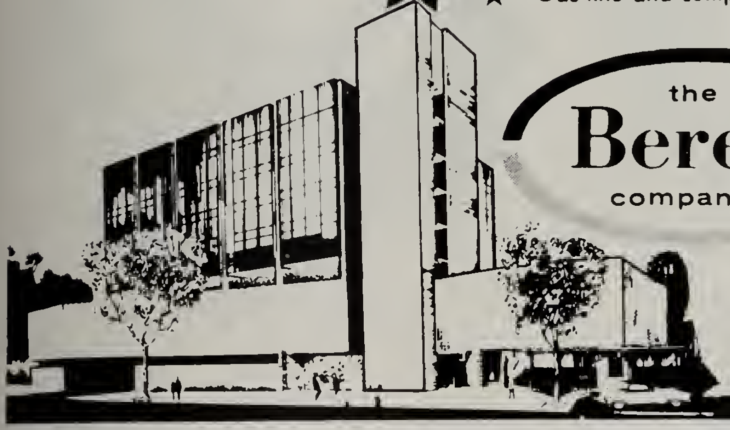

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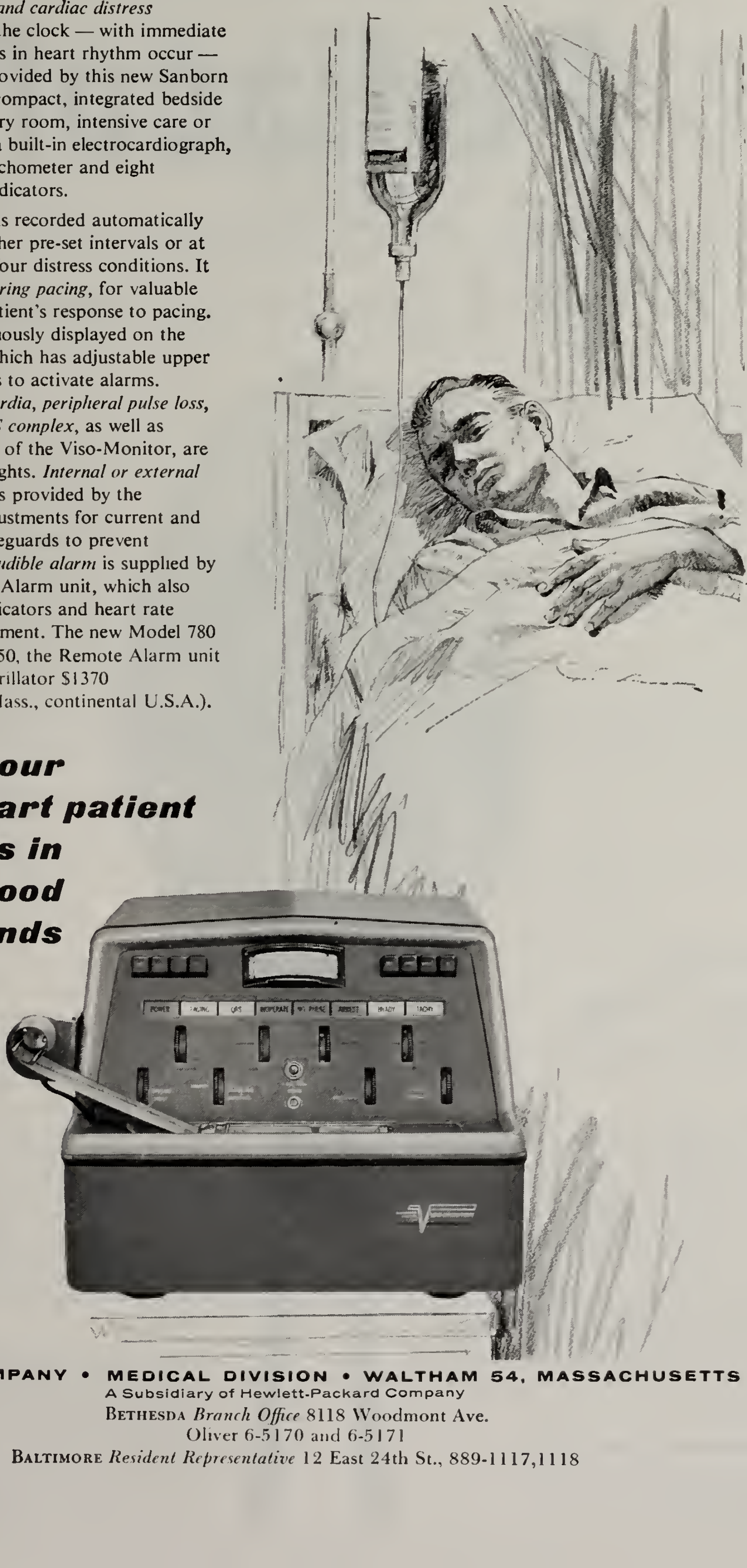

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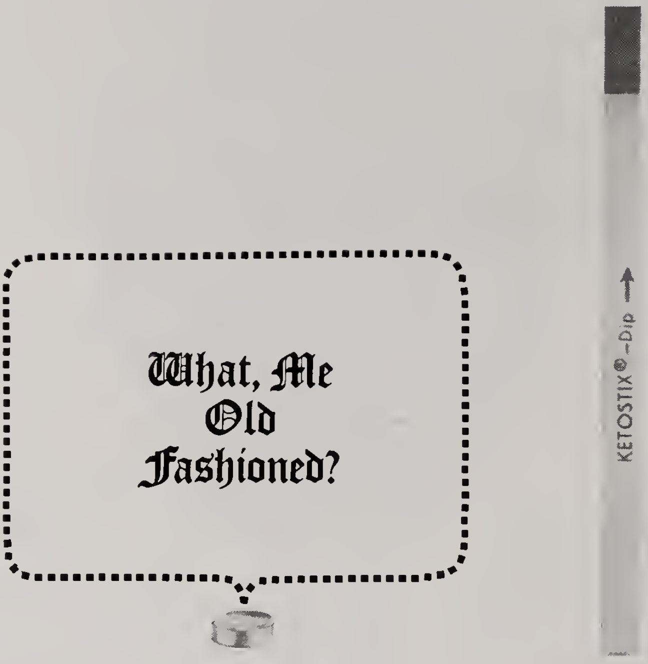

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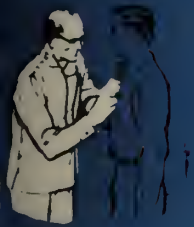

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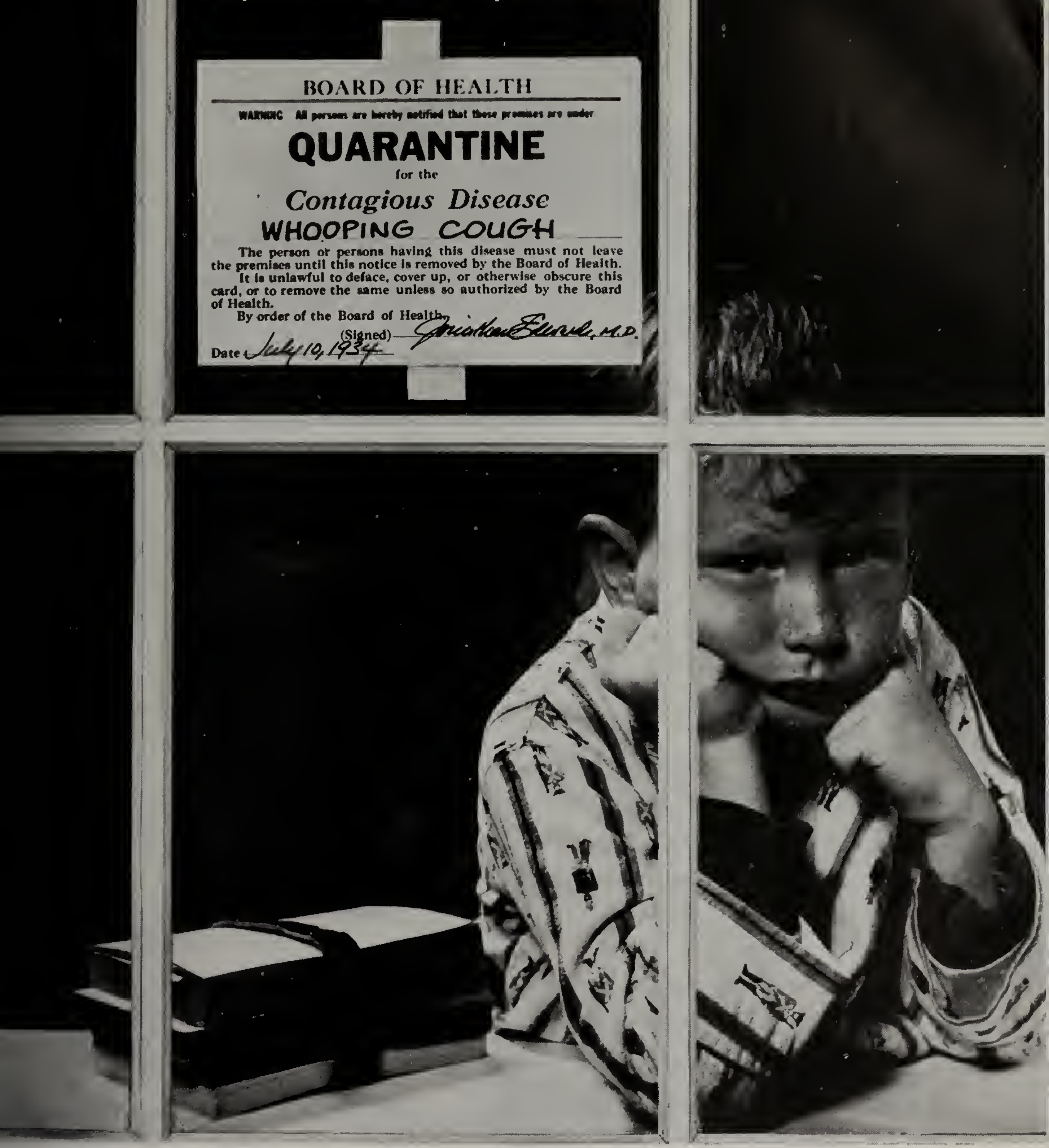
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MEDICAL ANNALS

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February 1964 VOLUME XXXIII • NUMBER 2

Sibley Memorial Hospital Number

This is the fourth of a third series of special numbers of the Medical Annals, the scientific material for which is supplied by medical institutions and scientific organizations in the Washington Metropolitan Area. For the Sibley Memorial Hospital Number the Editorial Board is indebted to Dr. Harvey H. Ammerman, Chief of the Section of Neurological Surgery at Sibley Memorial Hospital, who secured the papers which appear in this issue. Due to limited space all of the excellent papers could not be published in February but they will appear in other issues during the year.

American Psychiatry and the General Hospital*

ZIGMOND M. LEBENSOHN, M.D.

Clinical Professor of Psychiatry, Georgetown University School of Medicine; Chief, Department of Psychiatry, Sibley Memorial Hospital, Washington

The now flourishing romance between American psychiatry and the American general hospital was sparked (appropriately enough) in a few dark rooms of the Pennsylvania Hospital founded by Benjamin Franklin in 1751 in the City of Brotherly Love. Like most romantic involvements, the course of true love was far from smooth. But now, after a courtship of over 200 years, I am happy to announce that the two principles, although not yet married, show every sign of "going steady."

It shall be my purpose to trace the history of this intriguing courtship, to point out the fine qualities of the blushing bride and the potential groom, to warn of certain dangers, and finally to enlist the aid of organized American medicine in bringing these two, American psychiatry and the American general hospital, into holy wedlock, so that the fruits of their union may come as a blessing to the whole of American medicine.

For a long time the psychiatric patient in the general hospital was looked upon as an inescapable evil—a nuisance to be moved as quickly as possible into one of the detention rooms set aside for the purpose and then (if he didn't clear up in a day or two) to be hustled off to a private or public mental hospital in the country. In later years it became the deplorable practice to smuggle the milder psychiatric disorders into the medical wards under false or misleading medical diagnoses. Considering the state of medicine, the state of psychiatry, and the state of popular prejudice at the time, there was probably no workable alternative.

Largely as a result of these prevailing attitudes, private and public mental hospitals came into being. The first private hospitals for the mentally ill, such as The Hartford Retreat, MacLean, and Friends Asylum, appeared between 1800 and 1825. They set the pattern for "moral treatment" adopted by the state hospitals later on.

The first state hospital was at Williamsburg, Virginia in 1773. Other state hospitals followed in rapid succession, and soon the pattern was established for the state care of various chronic diseases including the mentally ill. After a very humble beginning, many of the state hospitals became excellent therapeutic institutions and reached their peak during the heyday of moral treatment in the third and fourth decades of the 19th century. Following the influx of foreign immigration in the 1850's and as a result of other socioeconomic upheavals, the state hospitals became overburdened, overcrowded, and understaffed, and have never been quite able to retrieve their earlier prestige.

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* Adapted from an address delivered, March 1, 1963, at the dinner meeting of the Ninth Annual Conference of Mental Health Representatives of State Medical Associations, sponsored by the Council on Mental Health of the American Medical Association.

Nonetheless, the tradition of state hospital care or "state medicine," if you will, for the mentally ill became firmly established in these United States. It was a tradition which has been universally accepted since Colonial times and has never been questioned even by the most loyal adherents of organized medicine.

Only within the past 50 years, with the advent of the "psychopathic hospitals," have we begun to see some break with this firmly-fixed tradition. These hospitals were most often separate institutions attached to large municipal or university teaching hospitals. Famous among the early ones were Bellevue, New York City (1879), Philadelphia General Hospital (1890), the University of Michigan Psychopathic Hospital (1901), the Boston Psychopathic (1912), and Henry Phipps, Baltimore (1913).

The first psychiatric ward was established at the Albany (New York) Hospital in 1902 "for the detention and care of persons afflicted with nervous and mental disorders." But the first psychiatric unit of a general hospital as we know it today was established in 1924 at the Henry Ford Hospital in Detroit.

These units were very slow in being accepted by general hospitals. A recent survey by Bush[1] indicated that in 1945 (21 years after the Henry Ford unit was opened) only 176 general hospitals had come to accept psychiatric patients. After World War II, however, the notion of including psychiatric units in general hospitals began to catch on with such swiftness that we now have over 800 such units throughout the country. Today, there are substantially more admissions to community hospitals in the United States than there are to all of the public mental hospitals combined. The widespread acceptance of this idea has made it literally true that any general hospital designed without a psychiatric unit will be obsolete before it is finished.

A Revolution in the Making

What we are now witnessing in America is a revolution in the treatment of the mentally ill. It is a revolution in which every physician can be proud to play a part. It is a revolution which hopes to overthrow the inadequacies of the large state hospital and replace them with the scientific humanism of modern psychiatry in a modern general hospital.

The dramatic success of this revolution is due in large measure to the striking effectiveness of the newer psychiatric treatment methods in the general hospital. These new treatment methods, in turn, would not have been possible without the recent scientific advances in somatic therapies, drug therapies, and brief psychotherapy. Even though many of the new techniques had their origins in Europe, it was the remarkable American genius for testing, improving, adapting, and disseminating these ideas that made them quickly useful to large numbers of the mentally ill.

During this same period, roughly the last third of the century, the general hospital itself was also undergoing revolutionary changes. In addition to treating the acute medical and surgical emergencies, greater and greater emphasis was being placed on elective surgery, diagnostic studies, and preventive procedures. Much of this change was due to a health-oriented public and to the greatly increased use of voluntary health insurance. The general hospital with its outpatient services and educational programs has taken on the qualities of a true community health center in the total network of community health services.

At least 3 specific events have precipitated this revolution:

The first was the report of the Joint Commission on Mental Illness and Health in 1961 which was initiated in 1955 by the American Medical Association and the American Psychiatric Association.

The second event was the first National Congress on Mental Health in 1962 organized by the American Medical Association which strongly supported the findings of the Joint Commission.

The third event is of very recent date, and I refer to President Kennedy's ringing Message to the Congress on Mental Illness and Mental Retardation on February 5, 1963, in which he stated:

"I propose a national mental health program to assist in the inauguration of a wholly new emphasis and approach to care for the mentally ill. This approach relies primarily upon the new knowledge and new drugs acquired and developed in recent years which make it possible for most of the mentally ill to be successfully and quickly treated in their own communities and returned to a useful place in society. These break-throughs have rendered obsolete the traditional methods of treatment which imposed upon the mentally ill a social quarantine, a prolonged or permanent confinement in huge, unhappy mental hospitals where they were out of sight and forgotten. . . . We need a new type of health facility, one which will return mental health care to the main stream of American medicine. . . ."

The new health facility that the President had in mind is, of course, the comprehensive community mental health center. In his own words, these centers "could be located at an appropriate community general hospital, many of which already have psychiatric units. In such instances, additional services and facilities could be added—either all at once or in several stages, to fill out the comprehensive program."

These excerpts and many similar ones (which limitations of space prevent me from quoting here) sound almost as if the President had been studying the reports and recommendations of the AMA Council on Mental Health.

Unique Advantages of the General Hospital Unit

How does it happen that the President has singled out the general hospital as the nucleus around which we could develop the new comprehensive community mental health centers? Obviously, he could not have done so without overwhelming evidence of its therapeutic advantages as conveyed to him by his medical and professional advisors.

Much has been written in recent years about what these advantages are. At this time I shall merely try to capture the essence of the matter.

The first advantage that strikes us is that the general hospital is a community general hospital in the broadest possible sense of the term "community." All citizens relate to it, those who are sick and those who entertain the possibility of becoming sick. It is the community's main instrumentality for dealing with health emergencies. If psychiatry is to become a part of the community it must do so through this instrumentality.

Clinically speaking, one reason for the notable success of the general hospital unit is precisely because the community general hospital is geared to fast intervention in an emergency situation. Treatment is applied instantaneously at the point of crisis when the dynamic forces in the situation can be turned into constructive directions. The pathology is not given a chance to "harden" and thus become immune to therapeutic attack.

The general hospital psychiatric unit, by the same token, becomes a "safety valve" in the community where acute psychoses and other conditions can be treated in a setting which provides friendly familiarity, absence of stigma, closeness to family and work, and continuity of psychiatric and medical care by the patient's family psychiatrist and family physician.

No other device seems quite so well suited to bring the private practice of psychiatry back to medicine and to bring the knowledge of psychiatry to the medical fraternity. To quote President Kennedy's Special Message on this point: "Private physicians, including general practitioners, would all be able to participate directly and cooperatively in the work of the center. For the first time a large proportion of our private practitioners will have the opportunity to treat their patients in a mental health facility. . . ."

The general hospital eliminates the distance between psychiatrists and their colleagues in medicine. It provides a locus for the healthy exchange of ideas and practices in the course of daily contacts. By offering a wide range of diagnostic and treatment facilities it provides an admirable setting for the education of both psychiatrists and other physicians. The psychiatric units of the general hospital provide an unusual opportunity for training the young resident to become a well-rounded general psychiatrist. Such a unit enables the psychiatric resident to see patients in the very early phases of illness, to participate actively in many of the crucial decisions affecting the patient's future, to assist in a wide variety of treatment methods (including psychotherapy, organic therapies, group therapy, family counseling, etc.), and to observe rapid changes in relatively short periods of time. The importance of time and economic factors, so easily lost sight of in other settings, is impressed on the psychiatric resident and will be of great use to him in his future practice. Since well-rounded general psychiatrists are in shortest supply in the United States at the present time, any program designed to increase their number will help fill one of the great unmet public needs.

And finally, the marriage of psychiatry and the general hospital makes honest partners of both, since a general hospital cannot be truly "general" if it does not treat the mentally ill, and psychiatry remains without "honor" if she does not join in holy wedlock with the rest of medicine.

The Struggle to Overcome Isolation

I have mentioned above that one of the greatest advantages of the psychiatric unit is that it removes psychiatry from its historical isolation from medicine. Lest we forget the malevolent dangers of such isolation, let me read once again the oft-quoted warning of S. Weir Mitchell when, in 1894, he castigated the members of the American Psychiatric Association in the following words: "With you it has been different. You were the first of the specialists and you have never come back into line. It is easy to see how this came about. You soon began to live apart, and you still do so. Your hospitals are not our hospitals; your ways are not our ways. You live out of range of critical shot; you are not preceded and followed in your ward work by clever rivals, or watched by able residents fresh with the learning of the school."

What a pity that Mitchell could not live to see American Psychiatry come out of its hiding places. He would have given his hearty approval to its return to the general hospital.

But this is no time for complacency. We must remain keenly aware of another form of isolation, a professional isolation which may be even more serious in its effects than the geographical isolation to which Weir Mitchell alluded. I refer, of course, to the overemphasis on any single form of therapy, which has characterized so many of our residency training programs. Such overemphasis tends to isolate the products of these training programs from hospital medicine. In March, 1962 I had the honor of delivering the Thirty-eighth Kober Lecture at the Georgetown University School of Medicine. In this lecture[2] I paid full tribute to the stimulating and leavening influence of psychoanalysis on American psychiatry. However, I pointed out, "If psychiatry is to move ahead on many fronts it must train its young men to measure up to the medical and social needs of our time. Too many of our most gifted young analysts drift further and further from the main stream of medicine. They rarely visit our hospitals. Their neurology is forgotten. They take false pride in never prescribing a drug or taking a blood pressure. They seldom appear in court, even though they may have much to contribute to their patient's welfare and to the improvement of psychiatric expert testimony. They are often cavalier in their relations with their medical colleagues in the management of consultations and the writing of clinical reports. Although they may not be geographically isolated in the way which offended S. Weir Mitchell 68 years ago, many of them become just as isolated in a professional sense, and the baleful effect of this may be just as serious."

It is to counteract this type of professional isolation that the psychiatric unit of the general hospital can play one of its most important roles. The psychiatric staff of such a unit should deliberately seek to be as diverse as possible. It should include qualified general psychiatrists, child psychiatrists, and analysts of all persuasions who can work together and learn from each other.

It is a great educational experience for the analyst to visit the hospital daily and see for himself how sick patients respond to milieu therapy, electroconvulsive therapy or pharmacotherapy; to familiarize himself with the dosages, indications and contraindications of the various new drugs; to acquaint himself once again with the exciting spirit of modern medicine which is found in the general hospital of today.

It is an equally great educational experience for the nonanalyst (whether he is a psychiatrist or not) to see for himself the beneficial effects of psychotherapy in depth as practiced by the skilled analyst when other methods have failed.

In short, we must learn from each other by our successes and our failures which should, like all scientific work, be open for inspection by our colleagues. We must never again, in the words of Weir Mitchell, "live out of range of critical shot."

Trends in Architecture and Design

Medicine will, of course, be called upon to guide the architects in designing the general hospital units of the future, and we will do well to work toward an architecture that reflects the therapeutic optimism and effectiveness of modern psychiatry.

We have learned many lessons from our contacts with the general hospital over the years. First of all, we have learned that, if necessary, one can treat most psychiatric patients on a standard medical or surgical ward if proper selection, supervision, and treatment are provided. Secondly, when designed from scratch, the psychiatric unit offers exciting possibilities for the imaginative architect, psychiatrist, hospital administrator and nurse.

The psychiatric unit should, ideally, bear the same relationship to the rest of the hospital that mental illness itself bears to the rest of medicine; namely, it should be like the rest of the hospital in most respects, but different from it in some important essentials. The most important difference is the atmosphere which, by reason of its design, furnishings and decor, should be warm, cheerful, friendly and homelike—an atmosphere which invites relaxation and diminishes anxiety. The unit should also be oriented to the fact that the psychiatric patient, unlike the medical or surgical patient, is up and about all day long and needs a place to work, a place to play, a place to meet his fellow patients in small or large groups, and a place to meet with his doctor in privacy.

As we develop an architecture of the new comprehensive community psychiatry we must take due care to avoid perpetuating the errors of the custodial past. Security features, though necessary, should be as unobtrusive as possible. When detention screens were first introduced to replace the old-fashioned bars and grilles, they were hailed with great enthusiasm. Thousands of them were installed (at great expense) and many of them placed (unnecessarily) in offices, nurses' stations, and other areas not usually accessible to patients on the theory that it is better to be safe than sorry. The ubiquitous detention screen still evokes an unpleasant note of grimness, lurking danger, pessimism, and unhealthy expectations. We seem to have overdone the security business in most of the psychiatric units of the past. With American motivation, ingenuity, and know-how we can surely find the architectural devices in the newer forms of glass and other materials which will not separate the psychiatric department of the future from the rest of the hospital. These new materials and new designs will provide us with ever improved settings for administering our therapeutic skills. It is now our job to communicate our needs to the architects and builders.

The Manpower Problem

We must all be acutely aware that the manpower shortage in psychiatry has taken on frightening dimensions at the same time that public acceptance of and demand for general hospital psychiatry is at an all time high. The chief danger is that plans to construct the psychiatric units will run ahead of plans to staff them. This could lead to disaster for the new community psychiatry. Staffing must come first, and it must be spearheaded by the very psychiatrists who are going to provide the services in these new mental health centers. We all recognize the extreme complexity of the manpower problem, but a few of its aspects merit further discussion.

As we take on the challenge of increasing the number of psychiatrists in America we must first ask ourselves these questions: 1. Are we making the most effective use of the 14,000 psychiatrists we now have in this country? 2. Is our current training in psychiatry preparing the young psychiatrist to fill the unmet needs of our time?

In my Kober Lecture[2] I stated, "The fact must be squarely faced that the present-day undergraduate and graduate training tends to direct the young psychiatrist into the more remunerative, less arduous, and more prestigeful pastures of private practice and away from the rougher challenges of research and caring for seriously sick patients. The hard truth is that we are expending enormous effort, time, and money to train a highly specialized group of experts who will devote the bulk of their professional careers to a small group of highly selected private patients. It is a disturbing truth when we view it in relation to making more than a dent on the core problem of severe mental illness in America."

I can now go even further and say that the typical product of graduate training in psychiatry today is not only not oriented toward service in a public mental hospital; he is not oriented toward service in any kind of hospital including a community general hospital. Psychiatrists who have sought to recruit personnel for their hospitals and agencies are painfully aware of the problem. I know it through my efforts to recruit and staff the Psychiatric Department of Sibley Memorial Hospital. The already overcommitted older psychiatrists of the community have lent a helping hand without hesitation. Little by little the younger men are beginning to show interest, and it is my fervent hope that we will be able to train a new breed of psychiatrists who will be able to work with their medical colleagues in a medical setting and accept the responsibility for comprehensive care that is in the best traditions of American psychiatry and American medicine.

Spreading the Benefits

Another problem which must be confronted is the matter of cost. The high cost of general hospital care coupled with the fact that we have not yet accorded the mentally ill the same type of insurance coverage as we have for other illnesses has raised the suspicion that general hospital psychiatric care is intended for the privileged few who can afford it. Most citizens without benefit of health insurance cannot pay the 25 to 40 dollars a day cost of general hospital care.

To this problem American medicine must address itself with all possible dispatch. We must do everything possible to further the extension of voluntary health insurance for psychiatric disorders on the same basis as that which applies to the rest of medicine. Experimentation with insurance coverage of mental illness has so far been favorable, as is witnessed by the Group Health Insurance Plan in New York City. The President, in his Special Message to the Congress, has indicated the most likely answer: "The services provided by these centers should be financed in the same way as other medical and hospital costs . . . individual fees for services, individual and group insurance, other third party payments, voluntary and private contributions, and state and local aid can now better bear the continuing burden of these costs to the individual patient after these services are established. Long-range Federal subsidies for operating costs are neither necessary nor desirable. . . ."

The Danger of Overspecialization

Finally, I want to make brief reference to the tendency toward overspecialization of the psychiatric unit. The problem, in essence, is that a given psychiatric unit of a general hospital may become too closely identified with the particular theoretical preferences of its chief of service. There are 2 main approaches to overcoming this tendency. One way is to staff the unit with a broad range of personnel which will bring the complete spectrum of psychiatric theory and practice to bear on its services. The second way is to establish a policy of accepting and treating the entire range of psychiatric disorders. The ideal psychiatric unit should be able to treat schizophrenics without the fear of becoming a back ward; it should accept selected alcoholics but not become a drying-out place; it should employ electroshock therapy whenever indicated but should not become known as a "shock mill"; it should use all forms of psychopharmaceuticals but should not become a "pill emporium"; it should provide a suitable milieu for analytic psychotherapy without becoming known as a "couch haven." All of this requires time, experience, work, balance, and patience.

The Outlook and the Challenge

The psychiatric unit of the general hospital is now spearheading a true revolution in psychiatric care in America due largely to the rapid increase in the number of these units. Phase I of this "revolution" is well under way, and we are now bringing psychiatry back to town after 200 years in the country.

Phase II, which still confronts us, will involve bringing the psychiatrists out of their town offices and into our general hospitals. This phase may prove to be the more difficult and time-consuming of the two, but will not be insurmountable. The *Zeitgeist* is in our favor.

Although the private and public mental hospitals of America will continue to fill a real need in many types of disorders, it is anticipated that the future expansion of psychiatric units into active community mental health centers will greatly reduce the number of patients who would otherwise become chronic charges.

The presence of a psychiatric unit in a general hospital fulfills many functions. It helps reduce the distance which still exists in many quarters between psychiatry and other branches of medicine. It gives golden opportunities for psychiatrists and other physicians to meet, exchange ideas, and get to know each other in a medical setting. It acts as a leavening influence by introducing the principles of modern psychiatry into every aspect of the general hospital. The psychiatric unit becomes more than a place to treat sick patients. The whole hospital becomes a better hospital as a result of its influence. The psychiatric unit becomes one lane of a two-way street: the general practitioner and specialist can learn much from the psychiatrist, and the psychiatrist, in turn, can profit by reëstablishing a closer relationship with his medical colleagues. The unit is uniquely suited to the well-rounded training of the resident staff as well as the nurses, aides, and all others involved in caring for patients. The practicing psychiatrist and the local psychiatric group must assume the most active possible leadership in providing such training. The psychiatric unit of the future must become one of the important nuclei from which the practice and the teaching of modern psychiatry can be disseminated with the help of organized medicine.

The movement toward making the psychiatric unit of the general hospital the nucleus of the community mental health center has already been under way for a number of years and has also had the active blessing of organized medicine. The President's challenging Message on Mental Health and Mental Retardation has now given this movement extra strength and a sense of urgency. The challenge has been directed to all who work with the mentally ill. But it is primarily American medicine and American psychiatry which must pick up this challenge if they are to preserve their vital leadership in the fight against mental illness in this country.

It is the impending marriage of American psychiatry and the general hospital that offers America its best hope of discarding the socialized medicine of a custodial past and replacing it with the excellence inherent in the medicine of a free society.

(*Continued on page 92*)

The Surgical Management of Otosclerosis

Results in 315 Consecutive Cases

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OTOSCLEROTIC SURGERY, whichever technique has been used, has produced satisfactory results in a large percentage of patients. Semicircular-canal fenestration, stapes mobilization, anterior crurotomy, and stapedectomy (subtotal and complete) with modifications in technique, each has brought gratifying results. A statistical evaluation of these "successes" is not possible. Authors differ in goals to be attained and in their definition of "success." "Successful results" does not necessarily mean restoration of normal hearing. Changing a totally deaf individual into a hard-of-hearing person may be considered a "success," if nothing more could be expected in that individual case. Since the anatomic and physiologic conditions of the inner ear differ widely in individual cases, the results to be obtained from otologic surgery—the change in hearing acuity—can vary as widely.

A patient, not forewarned of possible or even probable limited hearing after operation, may regard a clinically successful operation as a failure, because he expected normal hearing. Unless a patient is told that in 5 to 10 per cent of cases,[1] hearing restored at operation will be suddenly lost because of some postoperative complication, he will consider the operation worthless in his case and will refuse further surgery to correct the postoperative complication. Depending upon the procedure used and the postoperative hearing result, otosclerotic surgery can be repeated again and again, until in many cases hearing is finally restored.

The otologic surgeon knows after examination of certain patients with a marked perceptive hearing loss that poor cochlear reserve will prevent establishment of excellent hearing, whatever technique is used. But otosclerotic surgery that provides partial hearing to a very deaf person, with or without the use of a hearing aid, or that increases hearing ability to some degree, enhancing his social and economic fitness, cannot be considered a failure.

The goal of the fenestration operation has been restoration of a serviceable hearing ability, without need for a hearing aid, in selected candidates. Fenestration was denied to persons with a bone-conduction response exceeding 20 to 24 db. The 30 db level became the accepted "target"; if attained, the operation was a "success."

Since fenestration requires operating under general anesthesia and prolonged aftercare, and is limited to specific candidates, and since it has achieved "successful" results in only about 30 per cent, and, moreover, is frequently followed by re-ankylosis, new techniques came into use. Stapes surgery is attended by success in 60 to 90 per cent of patients; fenestration has been partially or entirely abandoned by many surgeons.[2]

Stapedectomy allows a broader goal. A patient with a bone conduction level as low as 40 to 45 db and an air-conduction level not lower than 80 to 85 db may be considered suitable for stapedectomy.[2] Complete closure of the air-bone gap and normal hearing are achieved in a majority of stapedectomy cases.[2]

Success following otosclerotic surgery can be of 4 grades[3]: (1) provision of an essentially normal hearing for patients with bone conduction levels of 10 db or less, (2) a serviceable hearing, or bone conduction of 15 to 20 db, (3) near serviceable hearing, or bone-conduction level of 25 to 30 db, the patient being able to hear close conversation without using a hearing aid, and (4) improved hearing with an aid for the patient with 35 db bone-conduction level, or more, who can hear close conversation without an aid and telephone conversation without an amplifier.

Stapedectomy is regarded as the technique of choice today, but in each case a decision must be made regarding which procedure will produce the better results, subtotal stapedectomy or total stapedectomy with entire removal of the footplate and replacement by an artificial strut. A decision must be made as to the most dependable prosthesis.

Polyethylene struts have been used with considerable success by many otologic surgeons. A mucosa graft used to cover the oval window proved too flimsy; often labyrinthitis occurred.[4] Polyethylene with Gelfoam® for closure of the window brought good results, but this procedure was abandoned by most surgeons because of the frequent occurrence of the strut penetrating the membrane and slipping into the vestibule, resulting in loss of hearing and other complications.[3, 5, 6, 7] Vein graft (introduced by Shea) used with the polyethylene strut proved more resistant to slipped strut and tended to cause less fibrosis in many cases.[8]

The stainless-steel-wire-loop-Gelfoam technique of House,[3] the wire-vein-plug procedure of Kos, and wire-fat-plug of Schuknecht have largely superseded the use of earlier methods.[1, 9, 10] The metal prosthesis is more flexible than the polyethylene strut[11] and more adaptable. The wire is bent to hook around the long process of the incus and is fitted snugly around the long process. After partial or complete removal of the foot-plate a vein or fat pad is placed over the opening and the strut placed on the pad.[2] The prosthesis resting on the graft seals the oval window. House[12] prefers tantalum to wire since it bends without springing back and is easily removed if revision is required. The metal loop prevents slippage and development of incus necrosis. It is accurate in size, shape and length and produces minimum irritation. Occasionally failure of the operation is caused by tight crimping of the wire.[9]

Complications frequently follow otologic surgery, whatever technique is used; most of them can be corrected by revision. Sensorineural loss, most common and serious, attended by tinnitus and vertigo, has often been due to slipping of the strut into the vestibule. A polyethylene prosthesis, suddenly detached from the incus, may penetrate the membrane of the oval window and enter the vestibule,[1, 2, 8] particularly if a thin layer of Gelfoam has been used.[12] Although bone-conduction loss occurred in 1 per cent of cases after stapes mobilization, it occurred in 2 per cent of cases after primary stapedectomy.[1] Slipping of the prosthesis has occasionally occurred in cases in which a vein graft was used, due to a severe fall or other accidental injury.

Severe labyrinthitis may result from slow necrosis of the graft after stapedectomy, which may lead to cochlear damage.[2, 4, 13] The necrosis may be due to inadequate nourishment of the graft[4] or to fibrosis.[1] Occasionally infection of the middle ear or the inner ear has been followed by meningitis[4] or by facial paralysis.[14] Labyrinthine disturbance with development of a fibromatous mass can follow a violent sneeze, blowing of the nose, or lifting a heavy object,[13] due to sudden change in air pressure within the ear. Necrosis of the long process, leading to infection, has been observed in cases in which polyethylene was used but not when wire was used.[12]

Re-ankylosis following a successful operation, due to gradual growth of new bone after obliteration of the foot-plate, has sometimes caused hearing loss.[2, 8, 9, 13] It has occurred after use of Gelfoam but apparently not after use of a vein graft.[8] Fistula of the oval window, accompanied by tinnitus and discrimination loss, can result from perforation of the muco-endosteal membrane by fragments of the foot-plate or perforation by a polyethylene strut after absorption of the underlying Gelfoam.[7, 12, 15]

Perforation of the membrane, dislocation of the incus, and the presence of foreign bodies in the vestibule may be the cause of failure in restoration of hearing rather than the type of prosthesis used.[4]

After careful selection of patients having a conductive type of hearing loss, a meticulous, skillfully designed and executed procedure is most essential in restoring hearing to the individual's preoperative level of bone conduction.

I have successfully used the polyethylene-vein stapedectomy technique (as introduced by Shea) and the stainless-steel-wire-and-fat graft technique (introduced by Schuknecht) and have obtained almost the same end-results from both, that is, a closure of the air-bone gap to within 10 db of the preoperative level of bone conduction. Of the various techniques available I favor stapedectomy, partial or total, with the use of stainless steel wire or piston and a Gelfoam pad to cover the fenestra ovalis.

Briefly, as described earlier,[16] this procedure is as follows: The crura of the stapes are fractured and the arch of the stapes removed. The foot-plate remains in the oval window. The mucoperiosteum of the foot-plate is removed and the sclerotic bone removed entirely or thinned down with a micro-drill and the foot-plate fenestrated. Instead of covering the fenestra ovalis with a small piece of vein taken from the patient's hand or with a fat graft taken from an ear lobe I now prefer the use of a Gelfoam pad. The prosthesis is of metal—stainless steel wire or piston.

Although I have obtained good hearing levels with the various techniques herein discussed, I have observed that with the use of the wire-or-piston-Gelfoam technique, there is less postoperative vertigo and less cochlear depression (especially in the 2,000 and 4,000 frequencies); there is immediate restoration of hearing acuity (of 10 db or better) to the preoperative bone-conduction level in the 250, 500, 1,000, and 2,000 frequencies.

In patients who have diffuse foot-plate otosclerosis (with or without such anatomic variations as a narrow or deep oval window niche, or an overhanging facial nerve, or overhanging otosclerotic promontory) I have performed a complete stapedectomy, using the stainless steel wire (or piston) and pad of Gelfoam to cover the fenestra ovalis. In all cases, with the above exceptions, and particularly if I note one-half or more of a bluish foot-plate, only a partial stapedectomy is performed. It is not my policy to begin routinely with a total stapedectomy.[16]

TABLE 1: Data on Surgical Results in 315 Cases of Otosclerosis*

Procedures	No. of Cases	Hearing Gain		Failures						Acute Hearing at End of 4 Years	
				Total		Revisions		Sensorineural Loss			
		No.	Per cent	No.	Per cent	No.	Per cent	No	Per cent	No.	Per cent
Shea's fenestration with vein graft	135	125	92.6	10	7.4	5	3.7	3	2.2	109	80.7
Schuknecht's fenestration with wire and fat graft	38	34	89.5	4	10.5	3	7.9	1	2.6	29	76.3
Partial stapedectomy	85	81	95.3	4	4.7	3	3.5	1	1.2	70	82.4
Stapedectomy with prefabricated wire or piston and Gelfoam	57	54	94.7	3	5.3			1	1.8		

* The group consists of patients with a hearing loss of between 35 to 70 db in the speech frequencies (250-500-1,000-2,000-4,000). The majority of patients wore hearing aids. The worse ear was operated on first. Hearing gain was considered only if the postoperative loss in the 250-500-1,000-2,000 frequencies did not exceed 25 db or if the patient was able to get along without a hearing aid. Failures were treated according to the classification in which they fell, whether they were of conductive or perceptive type. The conductive type only was revised. The perceptive type (or sensorineural loss) was considered in the classification of a hearing loss if the loss was of 10 db or more (in the speech frequencies) of the preoperative level. Acute hearing was considered as such only if the postoperative gain was within 5 db or better of closing the air-bone gap in the 250, 500, 1,000, and 2,000 frequencies.

Although Gelfoam has been used by some surgeons as a pad covering the fenestrated portion of the foot-plate with the use of polyethylene tubing as a strut, I feel, along with many other otologic surgeons, that the vein graft is a much better, firmer, and more protective membrane than Gelfoam for the support of a polyethylene prosthesis.

I agree with the opinion that a sensorineural loss following a good hearing gain (a loss which sometimes occurs 3 to 8 weeks postoperatively or even later) is probably due to one of these complications: (1) a fistula in the membrane covering the foot-plate, (2) contamination by the graft (vein or fat) in the oval window area, (3) chemical incompatibility of the graft with the perilymph, or (4) slipping of a polyethylene strut into the labyrinth. However, with the use of the wire-or-piston strut the continuity of the ossicular chain is secured by its looping around the long process of the incus and by the Gelfoam, which is replaced in time by fibrous tissue, that is used only to cover the fenestrated foot-plate.

The operative results in 315 cases are shown in table 1. The successful results obtained in these cases after 3 and 6 months, and after 1, 2, and 4 years are shown in table 2. The results following Shea's fenestration with vein-graft technique, Schuknecht's fenestration-wire-fat-graft method, and partial stapedectomy do not differ greatly at the end of 4 years. The results of stapedectomy with wire (or piston)-Gelfoam technique can be given for only 6 months, but they are slightly better than in the other techniques used after the first 6 months.

Table 2 shows that with all techniques the per cent of patients whose hearing had been restored decreased after the third month. It decreased still further after the sixth month, then became stabilized when the Shea procedure was used. Results were stabilized by the end of the sixth month when the Schuknecht technique was used. The same was true when partial stapedectomy was performed until after the second year; with all procedures the per cent of hearing gain decreased at the end of the fourth year.

The reasons for these decreases after certain periods of time have not been established. Adhesions may be one factor, and other physical conditions which may have arisen may be another.

TABLE 2: Successful Results of Otosclerotic Surgery over a Four-year Period

Procedures	No. of Cases	Hearing Restored									
		3 Months		6 Months		1 Year		2 Years		4 Years	
		No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Shea's fenestration with vein graft	135	125	92.6	122	90.4	120	88.9	120	88.9	109	80.7
Schuknecht's fenestration with wire and fat graft	38	34	89.5	32	84.2	32	84.2	32	84.2	29	76.3
Partial stapedectomy	85	79	92.9	76	89.4	76	89.4	76	89.4	70	82.4
Stapedectomy with stainless steel piston or wire and Gelfoam	57	54	94.7	54	94.7						

Discussion and Conclusions

The good results obtained with the fenestra ovalis vein graft or with the fat-graft techniques cannot be ignored. Yet the substitution of stainless steel wire (or piston) and Gelfoam for the polyethylene tube and graft tissue has decreased the incidence of some of the complications which can cause a sensorineural loss. A definite decrease in the sensorineural loss is observed in this series of cases as compared with my report of 1961.[16] The present percentage of decrease of loss noted is 1.5 per cent as compared to 2 per cent in my earlier report. With elimination of mechanical irritation caused by a slipped prosthesis when polyethylene prosthesis is used, and of possible graft infection and of increase in the fibrosis, improvement may be attributed to the lessened probability of chemical reaction of the graft with the perilymph, or possibly to decrease in fibrosis which follows the use of the Gelfoam.

Summary

The results of the 4 techniques used in otosclerotic surgery in the management of 377 patients have been compared. The immediate hearing gain following use of the 4 techniques ranged from 89.4 to 94.3 per cent. The postoperative complications which occurred after each procedure (regardless of which technique was used) averaged from 4.7 to 10.5 per cent. Most of the postoperative complications resulting in an air-conduction hearing loss could be and were corrected by revision. The sensorineural loss, secondary to labyrinthitis (ranging from 1.2 to 2.6 per cent), the most serious complication, could not be corrected by revision.

The postoperative results of the described techniques have been given and compared after a period of 3 months up to 4 years. Not a great deal of difference, except in cases of possible complications, is seen in the use of the different procedures.

At the present time my operation of choice in the management of otosclerotic patients is stapedectomy (partial or complete), with the stainless-steel-wire (or piston)-Gelfoam technique.

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The Management of Aspiration Pneumonitis

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ASPIRATION PNEUMONITIS, by our criteria, refers to the pulmonary reactions which follow aspiration of gastric contents, both liquid and solid. Aspiration occurred as a result of oversedation in 2 patients and in 12 from the effects of a general anesthetic, all within the past year.

When vomiting with aspiration occurs during or subsequent to administration of anesthetic agents the consequences may be fatal. In a recent series of 1,000 cases reported in the British Isles[1, 2] 18 per cent were due to aspiration under anesthesia. A high incidence of aspiration also occurs during obstetrical difficulties. This has been of concern to obstetricians and has led to a significant contribution by them in the management of aspiration pneumonitis.

In general there are 2 main types of response by the body following aspiration, depending on whether the aspirate is liquid or contains solids as well. Actually, there appears to be a mixture of liquids and solids in most patients who have vomited and aspirated.

If a patient has had a general anesthetic the reflex barriers are down and aspiration is not challenged; if not anesthetized the patient is less likely to aspirate since the cough reflex is active.

Most patients who aspirate are anesthetized or oversedated and must be attended to immediately.

Aspiration of Liquid Contents

These are for the most part gastric secretions containing hydrochloric acid and are highly irritative to the bronchial lining. The immediate body response is twofold: the bronchi and muscular bronchioles go into spasm followed shortly by "weepage" of the respiratory epithelium. Either or both may cause respiratory obstruction as evidenced by loud audible rhonchi and asthmatic wheezes, the production of frothy pulmonary secretions, development of cyanosis, and profound shock. If this frothy fluid floods the alveoli asphyxiation occurs rapidly.

Aspiration of Solid Material

If the vomited or regurgitated material contains solid particles mixed with the gastric secretions, acute bronchial obstruction may also occur. This, added to the bronchospasm and frothy material resulting from aspiration of gastric secretions, may cause a more rapid appearance of symptoms. However, we were not able to determine clinically in advance of bronchoscopy whether a patient had aspirated liquids or solids or both.

It was surprising that all patients who had aspirated liquids and solids did not die immediately. We have observed and removed small quantities of chili beans, "hot dogs," and spaghetti from patients who had no further discomfort or reaction following the aspiration.

As is well known, administration of a general anesthetic in the presence of a full stomach invites disaster. With the loss of consciousness, obtundation of laryngeal reflexes and relaxation of the gastric pinchcock permit regurgitation of gastric contents. If a sudden diaphragmatic contraction occurs at this time, the results are similar to vomiting. On occasion it is necessary to administer an anesthetic to such a patient. A cuffed endotracheal tube rapidly inserted will protect the airway should sudden emptying occur.

Diagnosis and Treatment

Early recognition of the presence of gastric contents in the hypopharynx is of prime importance. Such signs as swallowing or the early abdominal movements indicative of retching should be watched for routinely in all anesthetized patients. If the signs of impending vomiting should appear the anesthetic must be discontinued immediately and suctioning employed to remove any gastric contents in the hypopharynx. Indiscriminate and unnecessary suctioning of the oral cavity with further stimulation of vomiting is to be avoided. Of all patients who vomit under anesthesia, only one-half will aspirate. If no aspiration has occurred, only observation (including X-ray films of chest) for the next 48 hours is necessary. Aspiration should be suspected in the presence of any of the following: persistent laryngospasm, cyanosis of any degree, or moist rales on auscultation of the chest. At this point the anesthetic should be discontinued and immediate suctioning of the hypopharynx and larynx carried out with direct laryngoscopy. Forceps should be on hand for removal of any solid material observed and suction available for proper removal of liquid material. An oral cuffed endotracheal tube should be inserted rapidly to avoid further contamination of the tracheobronchial tree and to facilitate suctioning as well. The dual measures of frequent aspiration with administration of pure oxygen will serve to remove as much contaminating liquid material as possible and relieve the anoxia that is invariably present.

Bronchoscopy with careful cleansing of the tracheobronchial tree should then be performed as rapidly as possible. It is important to remove all particulate matter seen and aspirate all bronchial orifices with a flexible suction tip. If there has been any delay in the latter step frothy exudate may remain in the bronchi. This may be in the form of frothy pink secretions, and in some cases frank blood. On the basis of experience with 6 early patients a therapeutic regimen has been developed which is apparently quite effective. This is as follows:

1. While bronchoscopy is being performed 100 mg. of hydrocortisone sodium succinate is given intravenously.
2. After completion of the endoscopy the patient is given oxygen by mask or catheter with frequent suctioning of the oropharynx as necessary. He is kept in an intensive care unit until he has completely reacted, and a tracheostomy set is kept at the patient's bedside.
3. The patient is encouraged to cough when he has fully reacted from the anesthetic.
4. Oral or intramuscular fibrinolytic enzymes are started and given for 3 days.
5. The vapor concentration of the patient's room air is increased.
6. Aerosol therapy with a mixture of desoxyribonuclease, phenylephrine and a detergent is begun and given 4 times daily.
7. Broad spectrum antibiotics are begun, with the initial dosages given parenterally.
8. Steroid therapy is continued on successive days: hydrocortisone tablets 4 mg. by mouth for 2 days followed by 2 mg. for 2 days, then discontinued.
9. X-ray films of the chest are obtained immediately and serially.

When the patient has vomited and aspiration is thought to have occurred this procedure is followed regardless of whether food or liquid is seen in the tracheobronchial tree. The usual response to this therapy is rapid clearing of the cyanosis and dyspnea. This clinical improvement is seen in spite of roentgenograms which may show patchy to diffuse lung-field infiltration, a finding also noted by Hausmann and Lunt[3] after use of steroids in their patients. As they have reported, their patients had aspirated fluids only and showed none of the symptoms of sudden bronchial obstruction but rather a diffuse pulmonary involvement. Their assumption that the sudden separation of the placenta causes a sharp drop in circulating steroids only fortuitously enters into the mode of therapy they employed. Nevertheless, it was this assumption that made them fear a sudden adrenal insufficiency and first led to the use of steroid therapy.

Hydrocortisone is now an accepted and lifesaving medication in the treatment of aspiration pneumonitis. The exact mode of action of the steroids is not known. Steroids probably act as a blocking agent in preventing the inflammatory response to the gastric juices and the subsequent outpouring of serous fluid into the alveoli. This inference may also be based on the clinical behavior of the patient. In each case in which steroids were used in this series the exudative response quickly abated and secretions became minimal.

In patients who had not received steroids and in rabbit experiments reported by Mendelson[4] exudative pulmonary involvement was one of the most striking findings. In the recent reports by Bannister, et al[5] studying the effects of gastric juice in rabbit lungs, certain interesting observations were made. Animals receiving gastric juices into the bronchi as controls all had a necrotizing destruction of the pulmonary tissue followed by rapid death. Various combinations of HCl and saline, HCl and calcium gluconate and these substances alone without HCl in almost all instances caused violent pulmonary reaction leading to consolidation and death. However, when gastric juice was instilled and the animal given hydrocortisone intramuscularly every 6 hours, the pulmonary reaction was much milder. In these animal lungs examined histologically little damage was seen, and in some animals no lesions, either gross or microscopic, could be seen.

Our impressions concerning saline irrigation of the tracheobronchial tree are strengthened by the experiments of Bannister et al.[5] Their studies showed that instillation of large quantities of any solution (4 c.c./Kg.) into the tracheobronchial tree, as is sometimes the practice, served only to disseminate hydrochloric acid into the more distal bronchioles. Attempts to neutralize HCl with bicarbonate, they surmised, were unsuccessful because of the small interfaces between the chemicals in the bronchioles. Flooding the tree with saline or bicarbonates therefore may be looked upon as a form of "controlled drowning" even when done under bronchoscopic control.

Since the specific action of hydrocortisone is not known, the dosage selected was arrived at arbitrarily. Hydrocortisone sodium succinate was first used empirically in an emergency situation. This proved sufficiently satisfactory to justify continuance of the same dosage in future cases. To maintain the steroid level, additional steroids were given by mouth on successive days. The use of activated pancreatic dornase is predicated on experience gained in the treatment of patients having acute and chronic pulmonary suppurative disease and having retained secretions postoperatively. In almost every instance secretions were made less tenacious and were more easily expelled by the patient. When activated pancreatic dornase was used in the patients reported here, no instance of retained secretions or prolonged pulmonary infiltration was observed.

Wide-spectrum antibiotics are used to prevent secondary bacterial invasion into the injured and vulnerable pulmonary tissues. Roentgenograms are obtained as soon as possible after aspiration and followed daily as necessary.

As would be expected, when only 1 lung is affected the right lung is the more frequently involved.[4] Roentgenograms will show pulmonary infiltration which may resemble pneumonitis, edema, or consolidation. There may be partial atelectasis. The roentgen appearance of the lung does not parallel the clinical course. The initial response of severe dyspnea, cyanosis, and moist rales will be corroborated by an immediate chest film. After institution of the described regimen and clinical improvement a subsequent chest film may or may not show clearing. The chest findings described as patchy to diffuse infiltration will be unchanged initially. It must be inferred that the original insult from gastric aspirate persists, yet inflammation does not progress into an exudative response. In an instance when pulmonary edema was also suspected in an edematous patient a diuretic was employed with questionable clinical benefit. In all instances the roentgen appearance of the chest returned to normal no later than 2 to 3 weeks after discharge from the hospital. Similar roentgen appearances were noted in experimental animals exposed to gastric juices. Examination of these animal lung tissues gives basis for our interpretation of clinical cases.

Therefore, it is important to stress that although the patient's clinical picture is dramatically improved the radiologic appearance of the lung is unchanged at the outset of the treatment.

Illustrative Cases

Case 1. Mrs. D. H., a 34-year-old white woman, was admitted for elective cesarean section on the evening of the day prior to surgery. On the following morning she was given the usual preoperative medications, and the operative procedure was accomplished with general anesthesia. During induction the patient vomited liquid gastric contents, apparently with aspiration. The oropharynx was cleared with suction and endotracheal intubation performed. Following anesthesia and cesarean section the patient developed tachypnea, cyanosis, tachycardia, and bilateral musical rales. She was placed on aerosols and wide-spectrum antibiotics and encouraged to cough. On this regimen the cyanosis and difficult breathing gradually cleared. By the second postpartum day the cyanosis was gone completely and the rales had almost disappeared. A portable chest film taken 3 hours postoperatively, at which time the patient was cyanotic, showed a diffuse pneumonic infiltrate, most marked on the right.

Comment. Prompt therapy by the anesthesiologist following the aspiration was probably life-saving in this instance. Even though the gastric juices had been removed through the endotracheal tube sufficient chemical action had taken place to impair the bronchial airways as evidenced by the cyanosis. The slow clinical response in this patient contrasts greatly with the rapid response by patients who have received steroids.

Case 2. A 31-year-old white woman while under the effects of general anesthesia vomited and aspirated. She immediately became cyanotic and had violent respiratory excursions with retraction of the intercostal spaces. She was suctioned rapidly by the anesthesiologist, and 100 per cent oxygen was given from the

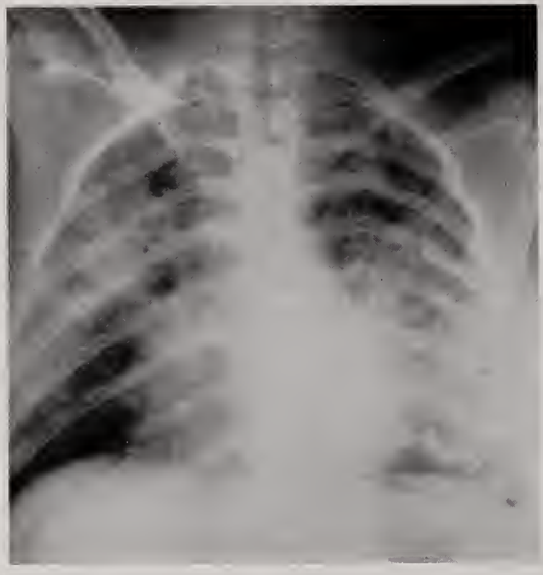

FIG. 1. Case 2. Chest film taken immediately after aspiration.

mask. Bronchoscopy, performed within 30 minutes of aspiration, revealed large amounts of frothy sputum in the trachea and both bronchi (figure 1). This was aspirated as well as many pieces of what appeared to be "hot dog" and "hot dog" skin. Suctioning was carried out with the suction tip until no further secretions could be seen. Foreign body forceps were necessary to free 2 pieces of "hot dog" skin which were adherent to the bronchial surface. The bronchial mucosa everywhere appeared to be markedly inflamed and edematous and at the level of the carina resembled beefy hamburger. Solu-Cortef® was given intravenously during the bronchoscopic procedure. The postoperative regimen was instituted as soon as bronchoscopy was completed. A chest film taken at that time showed increased density in the right upper lobe. The clinical picture improved rapidly within a matter of hours (figures 2 and 3). By the fourth postpartum day the patient was well enough to be discharged.

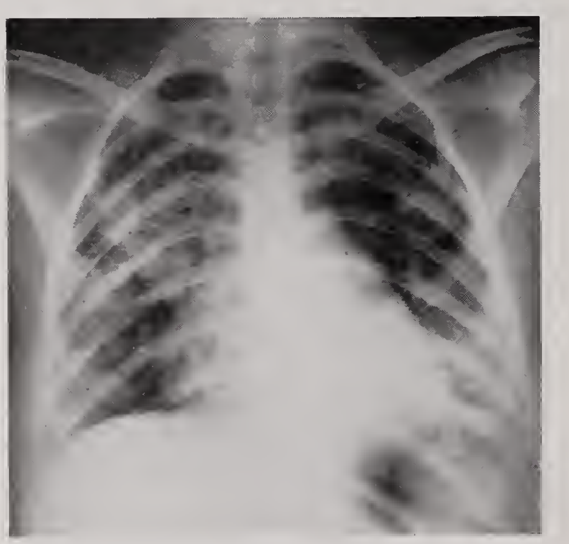

FIG. 2. Chest film taken 7 hours later. Patient has received steroids and nebulization and has dramatically improved clinically.

Comment. This patient is an example of aspiration of liquid gastric contents as well as solid food particles. In all likelihood a piece of the "hot dog" or "hot dog" skin had obstructed a major bronchial orifice giving symptoms of acute bronchial obstruction as well as the asthmatic type of reaction reported by Hausmann and Lunt.[3] The bronchoscopic removal of the piece of "hot dog" as well as aspiration of the secretions helped to clear the airway. There has been no further difficulty, and chest films have shown satisfactory clearing.

Summary

When aspiration has occurred under anesthesia, rapid countermeasures must be taken immediately. The necessary measures to counteract the respiratory impairment and shock include bronchoscopy and the use of steroids. An outline of management has been presented.

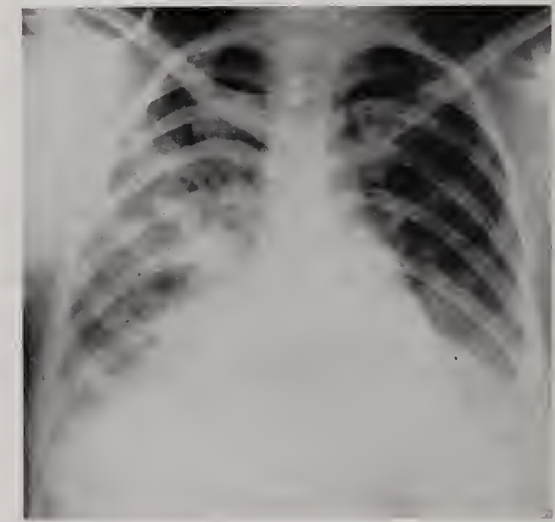

FIG. 3. Film taken the following morning showing almost complete resolution on left, residual patchy infiltration on right. Patient is further improved clinically.

ADDENDUM: Since the submission of this manuscript 3 additional cases of aspiration pneumonitis have been seen and treated. In 1 patient who was comatose and aspirated twice while convulsing, steroid therapy was contraindicated because of an acute viral encephalitis. He was managed by tracheostomy and suction alone. In the other 2 who aspirated as a result of vomiting secondary to alcoholic intoxication immediate clinical response was obtained following the

(*Continued on page 92*)

Bronchogenic Carcinoma

A Comparative Study of Orthovoltage and Cobalt-60 Teletherapy

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In our experience the number of patients receiving irradiation therapy for primary bronchogenic carcinoma has been on the increase and it is now one of the most frequent of cancers. It is the only form of cancer increasing in both sexes.[1]

Surgical removal of the primary tumor and regional hilar and mediastinal nodes when possible is generally thought to be the treatment of choice. All too often the disease has spread to such an extent that primary surgical removal is impossible and residual disease is left. Bronchogenic carcinoma does not allow the resection en masse technique because of the vital mediastinal structures.

The patients who are inoperable and those with residual disease are then treated with other means. Irradiation therapy usually becomes the treatment of choice.

To improve the survival, irradiation has been combined with chemotherapy[2, 3] and with post-irradiation surgery.[4] A preliminary impression in a few cases with both repeated surgery and chemotherapy with cobalt-60 teletherapy at Sibley in coöperation with others* is favorable and will be the subject of a future presentation.

My personal experience with irradiation therapy of bronchogenic carcinoma encompasses a period of 22 years, all except the last 2½ years with orthovoltage, the remaining with cobalt-60. A comparison of the 2 energies, 250 and 400 KVP and cobalt-60 teletherapy, should prove enlightening.

Material

The years 1951–1961 were chosen for the patients treated with orthovoltage because the equipment was relatively unchanged during this interval and the treatments were under my direct control. Treatment with cobalt-60 teletherapy became available in 1961 and in this study is for 25 months, 1961–1963 (graph 1).

There is no selection of cases. All patients referred for therapy of primary bronchogenic carcinoma are included in this series. The cell type varied from adenocarcinoma and epidermoid to oat-cell carcinoma with histologic grading from anaplastic to Grade I. Other types of pulmonary lesions such as lymphomas, thymomas, and metastatic carcinoma are excluded.

The diagnosis was established by cytology, thoracotomy with biopsy, bronchial biopsy, scalene-node biopsy, and in some instances by peripheral lymph-node biopsies. Many diagnoses were confirmed by postmortem examination. Up to one-third of the patients were very sick, as witness the number who were unable to complete the treatment or who died a short time later. Patients with obvious metastatic disease are not excluded from this study.

By pure coincidence there were exactly 81 patients in both series, one for a 10-year period and the other for 25 months. This in itself is an indication of the increase in bronchogenic carcinoma.

The patients treated were referred by various physicians in the Washington area. Surgery was performed by many thoracic surgeons, and undoubtedly there was a variation in what was determined inoperable. I accepted the surgeon's word as to operability unless metastasis was present outside the thoracic cavity.

Follow-up was complete in all but 2 cases in the orthovoltage series, and this failure was due to the patient leaving the country in one instance and the city in the other. Their condition was such at the time of their last contact as to expect that they died shortly thereafter. These were considered as having survived until that contact.

All patients in the orthovoltage series have died of their disease. In the cobalt-60 series 21 are still living 1 to 25 months after completion of their treatment. The long-term survival of the orthovoltage series was in one instance 7 years, in two over 3 years, and in one over 2 years.

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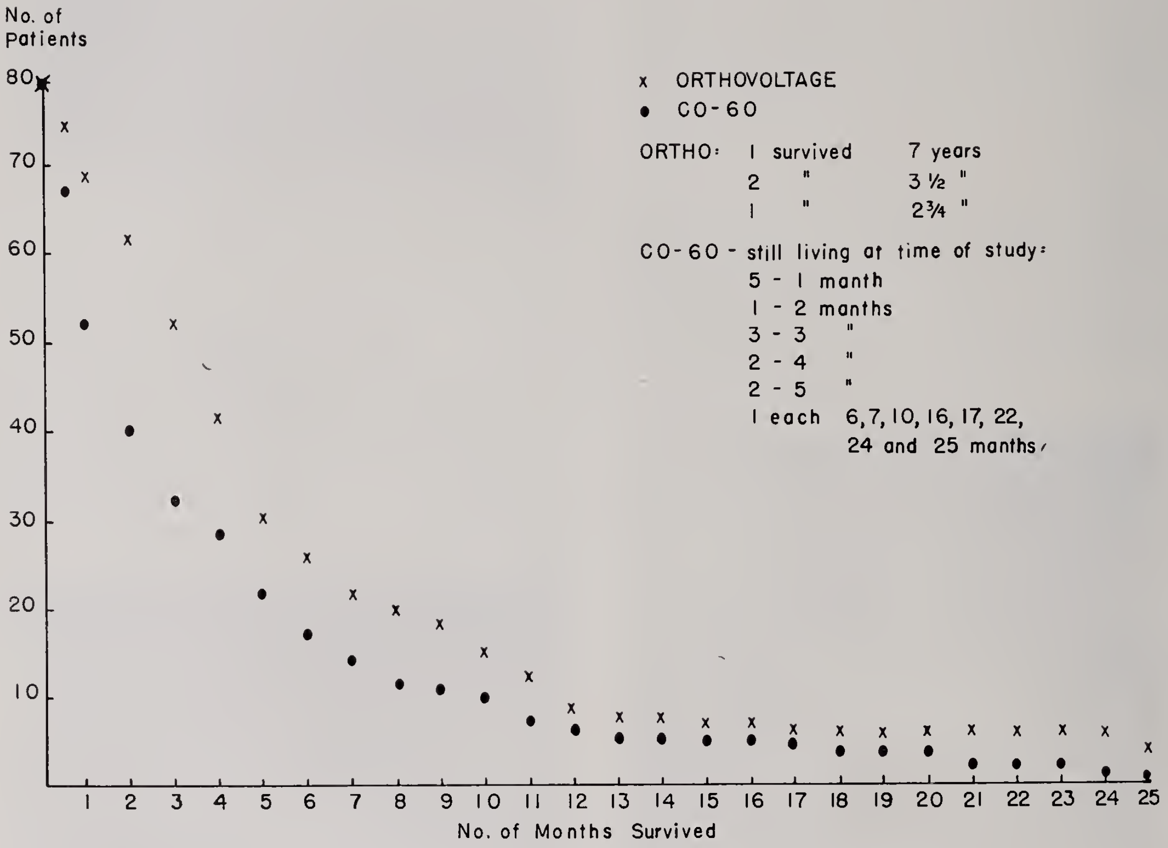
* Dr. William Frank, of Rockville, Md., and Dr. Marvin Kolkin, of Silver Spring, Md.

Treatment in both series consisted of therapy to the primary tumor and mediastinum and either concurrently or later to the metastatic foci. If the metastatic areas were lymph nodes in the supraclavicular or cervical area treatment was given vigorously; if elsewhere, treatment was given to relieve symptoms and for palliation.

The primary site was treated with either 2 or 3 ports depending upon the size of the patient and the location of the tumor. The mediastinum was always part of the treated area.



GRAPH 1. Comparative Survival Rates with Orthovoltage and Cobalt-60.

In comparing the 2 types of therapy, cobalt-60 was less severe from the patient's standpoint. This was manifested in several ways. The most outstanding was the total lack of a moist reaction in the skin portals. With orthovoltage there was usually a brisk erythema or a moist epithelite which required 2 to 3 weeks to heal. Cobalt-60 produced a dry desquamation or only a pigmentation. Irradiation sickness was minimal and easily controlled with cobalt-60. At no time was it necessary to modify the treatment regimen as was the case with orthovoltage.

Internal reaction such as esophagitis, tracheal and bronchial reaction, and roentgen pneumonitis was about equal in each series. This is somewhat misleading because the tumor dose with cobalt-60 was usually 40 per cent greater. With equal tumor doses the frequency of radiation pneumonitis is higher with orthovoltages, but the biologic effectiveness of the hard gamma-ray beam in cobalt-60 is less than that of orthovoltage by about 85 per cent.

Cobalt-60 generates a beam of 2 wave lengths, 1.17 MEV and 1.33 MEV with a half-value layer to 13 mm. of lead.[5] A 2 MEV generator has a half-value layer of 12 mm. of lead.[5] The biologic effect is very similar with the 2 types of equipment. The effect upon the skin is slightly less with cobalt-60 than 2 MEV because of the mixed beam of the X-rays as compared with the monochromatic cobalt-60 beam.

Discussion

Our results in the treatment of primary bronchogenic carcinoma are similar to those obtained elsewhere,[6, 7] better than those of Sabour et al,[8] and apparently equal to the results obtained at the Lahey Clinic[9] with 2,000,000 volt X-rays, although it is too soon to determine this with our cobalt-60 series.

The comparison of the 2 modalities cannot be made exactly because of the difference in the time span. The 2 survival curves are quite similar, but it must be pointed out that in the cobalt-60 series many more very sick patients were started on treatment who did not complete the treatment (14 as compared to 7), and 15 as compared to 6 patients did not survive the first month after completion of treatment. Two of these died of exsanguinating pulmonary hemorrhages after showing some improvement. When those deaths occurring before completion of therapy or less than 1 month after completion of treatment are subtracted from the totals in both series the median survival is almost identical at 4¼ months, as compared to the Lahey series of 5 months.

Our most disabling irradiation complication was radiation fibrosis with its resultant diminished vital capacity, but neurologic defects and other serious sequelae have not been detected as yet.

It is too early for anything more than an impression, but the combination of chemotherapy, irradiation and surgery seems to point to an improvement in survival of otherwise inoperable cases.

Conclusion

There is little difference in the survival rate between those patients treated with orthovoltage and cobalt-60 teletherapy for inoperable bronchogenic carcinoma. The number of patients receiving therapy has increased tremendously, 81 cases in 10 years and the same number in the past 25 months. This reflects the greater incidence of pulmonary carcinoma and probably also the attempt with cobalt-60 to obtain a greater salvage rate.

Improvement in the survival of inoperable bronchogenic carcinomas will in the future depend upon more than an increase in the penetrability of the irradiation beam and may well be, as Dr. Ralph Phillips[10] suggests, in the combination of chemotherapy, irradiation and surgery.

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Clinical Center Study of Osteopetrosis and Osteogenesis Imperfecta

The coöperation of physicians is requested in the referral of patients with osteopetrosis and patients with osteogenesis imperfecta for studies of calcium metabolism in these conditions underway at the Clinical Center, National Institutes of Health, Bethesda, Md.

Patients should be between the ages of 21 and 51, in good general health, without gastrointestinal or renal disease. They should be ambulatory, and able to remain in the hospital 3 to 4 weeks for blood tests, radioactivity measurement, and a metabolic balance routine.

Upon completion of the study patients will be returned to the care of their referring physicians, who will receive a complete narrative summary and report of the findings.

Physicians interested in having their patients considered for admission to this study should write or telephone Dr. Leon E. Rosenberg, Metabolism Service, National Cancer Institute, National Institutes of Health, Bethesda, Maryland 20014; telephone: 49-63097 (area code 301).

Coronary Arteriography

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THE CLINICAL INDICATIONS of coronary arteriography as a diagnostic procedure remain to be completely defined.[1] The various techniques, diagnostic limitations, morbidity, and mortality from this procedure have been thoroughly elaborated.[2, 3, 4] In the past year we have cautiously used coronary arteriography successfully to investigate 2 patients in the Sibley Memorial Hospital. In the case of 1 patient with a patent ductus arteriosus the entire right coronary artery was visualized selectively. The second patient represented the problem of chronic precordial chest and shoulder pain with exhaustive studies which failed to establish a diagnosis.

Adequate radiographic exploration of the coronary arteries can be accomplished by either selective coronary arteriography or by thoracic aortography. Selective catheterization of the coronary arteries provides greater anatomic detail but is a more difficult procedure. Thoracic aortography and its modifications usually provide adequate filling of both coronary arteries and is more widely used. The catheter may be introduced into the brachial, axillary, or femoral arteries by the percutaneous method of Seldinger or by direct surgical exposure of the vessel. In each instance we used direct insertion into an exposed brachial artery. We selected a wide-bore catheter (Fr. 10) with 5 or 6 side holes and a blind tip. The side openings minimize injection recoil and enhance a uniform delivery of the contrast medium. The catheter tip was localized at the approximate supravalvular level of the aorta with an image intensifier. A 1 c.c. test dose of Hypaque 90® (sodium diatrizoate) was injected, and the catheter was frequently irrigated with heparinized saline. The patient was then placed supine in the left posterior oblique position on a biplane Schonander film changer and the catheter attached to a Gidlund compressed-air automatic injector (7.5 Kg./cm.^{2}). Ten films at 6 films per second in 2 planes were made during injection of 40 c.c. of the contrast medium. The first film was made while 10 c.c. remained in the injector.

Report of Cases

Case 1. M. B., a 21-year-old white housewife, was admitted to Sibley Memorial Hospital on April 11, 1963 without complaints for surgical correction of a probable patent ductus arteriosus. She was first seen by one of us (T. F. C.) in April of 1962 at the beginning of pregnancy, when a continuous left parasternal heart murmur was detected and a patent ductus was suspected. She was aware of a heart murmur since early childhood. She denied limited physical activity except for some breathlessness with strenuous exercise such as competitive tennis. During the last trimester of pregnancy she developed orthopnea and was digitalized. Her delivery at term was uneventful. She had had repeated respiratory infections during early childhood, and there was a question of rheumatic fever at age 15 years. The family history was unrelated. Physical examination revealed a healthy, well-developed young housewife, normal in every respect except for a grade 3 continuous heart murmur along the left sternal border in the first 3 intercostal spaces. The pulmonary second sound was louder than the aortic. The femoral pulses were normal bilaterally. The blood pressure was 136/78, and the pulse was regular at 72 per minute.

Hemoglobin, hematocrit, blood urea nitrogen, and urinalysis were essentially normal. The electrocardiogram showed a rate of 69 with sinus arrhythmia and left ventricular hypertrophy by QRS voltage criteria. Chest roentgenogram and fluoroscopy showed the heart to be normal in size with rounding of the left ventricular contour suggesting hypertrophy. There was no evidence of left atrial enlargement. The hilar pulsations were within normal limits.

The consulting cardiologist believed the findings to be compatible with a patent ductus arteriosus but recommended that studies be done to exclude a coronary or pulmonary arteriovenous fistula.

Bilateral intravenous angiocardiograms showed good opacification of the right heart and pulmonary artery segment. The left heart and aorta were poorly visualized. The entire series revealed lingering of the contrast medium within the pulmonary arteries suggesting recirculation. There was no evidence of a pulmonary arteriovenous fistula. A retrograde aortogram was done the following day, and this showed prompt opacification of the distal aortic arch and the pulmonary arteries, but the communicating ductus was not visualized. A second series of films after repositioning the catheter showed the tip of the catheter to be in the ostium of the right coronary artery, and it was selectively filled without abnormality (figure 1).

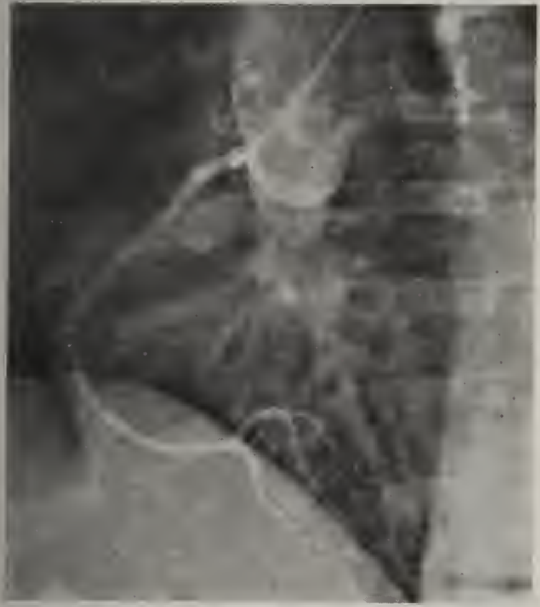

FIG. 1. Case 1. Selective right coronary arteriogram. Tip of catheter lies in lumen of this vessel.

At surgery a patent ductus arteriosus about 1.6 cm. in diameter was transected. The patient recovered uneventfully and was discharged on the tenth postoperative day.

Case 2. M. A., a 47-year-old white grandmother who is employed as a bank-teller, was admitted to the Sibley Memorial Hospital for a coronary arteriogram on April 17, 1963. She was first seen by one of us (T. F. C.) in July of 1959 because of palpitation and shortness of breath and was then hospitalized. The physical examination, hemogram, urinalysis, electrocardiograms, thyroid function studies, complete gastrointestinal and gall-bladder series were all negative. The chest roentgenogram showed slight prominence of the left ventricle and an upper normal heart size. She was discharged after adequate observation.

In September of 1959 while parking her car she suffered severe precordial discomfort radiating to her left shoulder and arm. Electrocardiograms at this time showed no change from previous recordings. Nitroglycerin provided some relief of her discomfort. A cardiac consultant reported the Master's test to be negative. There were several recurrent episodes of precordial discomfort during the ensuing months and occasions of isolated left-shoulder pain. In March of 1962 precordial pain of prolonged duration prompted a second hospital admission. The electrocardiograms were unchanged from previous studies. The SGOT, LE preparations, and thyroid function tests were negative. X-ray films of the cervical spine showed narrowed interspaces and encroachment on the neural foramina. The thoracic spine showed osteoporosis. The chest roentgenogram was unchanged. A second cardiac consultant noted tenderness at the costochondral junction along the left sternal border and believed the disorder to be musculoskeletal in origin. Cervical traction, muscle relaxants, analgesics, and exercises provided some relief. The history revealed a supracervical hysterectomy in 1945 with removal of 1 ovary and a portion of the other. Physical examination on this admission revealed a well-developed white woman appearing younger than her stated age. The blood pressure was 105/60 in each arm. The pulse was regular at 82 per minute. The weight was 130 lbs. There were no heart murmurs or physical evidence of cardiac enlargement.

Hemoglobin, hematocrit, and urinalysis were normal. The I^{131} uptake in 24 hours was 20 per cent (normal 15–45 per cent). An electrocardiogram was normal. A roentgenogram of the chest was as before. A thoracic aortogram revealed good filling of each coronary artery with evidence of complete occlusion of the anterior descending branch of the left coronary artery about 0.6 cm. distal to its point of origin (figures 2 and 3). The findings were reproduced in a second series of films in a different projection. There was faint visualization of collateral circulation. The procedure was well tolerated.

Discussion

Coronary arteriography has been widely applied, and refinements of technique continue with minimal patient morbidity.[3] Sones[2] reported a series of 1,748 coronary arteriograms, and in the last 1,300 cases there were 2 deaths. In this series there were 33 instances of reversible ventricular fibrillation. Nordenstrom[4] reported a selected series of 100 coronary arteriograms of patients with ischemic heart disease without mishap. In selecting patients for this study Nordenstrom required normal kidney, liver and lung function tests and normal blood values with the exception of an elevated blood cholesterol. The presence of an acute infection, cardiac decompensation, and any of the serious cardiac arrhythmias were considered as contraindications. There has been 1

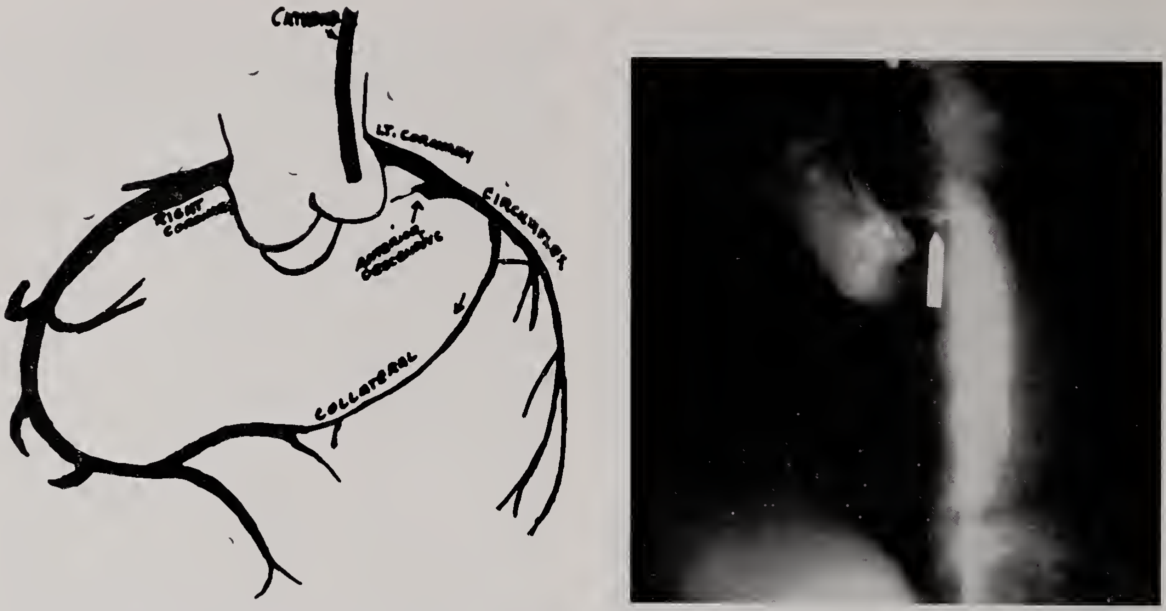

FIG. 2. Case 2. Arrow indicates point of occlusion of anterior descending branch of left coronary artery. Labeled tracing of visible vessel on original film (above left) is not visible in reproduction.

instance of an embolus propagated from a catheter during coronary arteriography cited by Williams.[5]

We believe the second case reported above represents an ideal application of coronary arteriography as a definitive diagnostic procedure. The clinical indications for this procedure will possibly broaden with more experience, and the true impetus will be the development of effective surgical treatment of occlusive coronary artery disease.

Summary

Two cases of coronary arteriography have been presented. In 1 patient coronary arteriograms were definitive in establishing the diagnosis of occlusive coronary artery disease. The technique and experiences of larger series have been briefly reviewed.

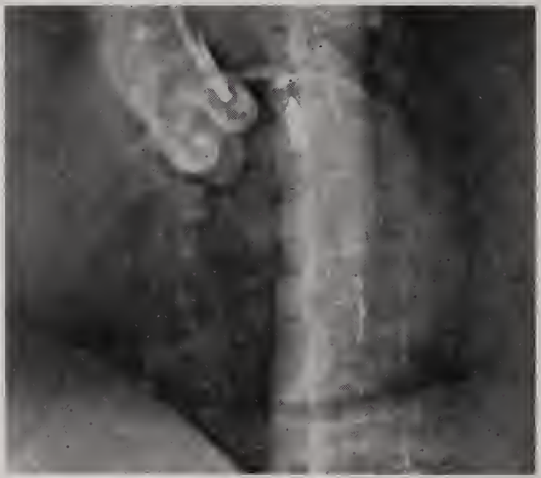

FIG. 3. Log-E-gram® of figure 2. Occlusion of anterior descending branch of left coronary artery about 1.5 cm. distal to its point of origin.

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The Role of Posture in the Prevention of Thrombo-embolism

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WITH THE GENERAL ACCEPTANCE of early ambulation in the late 40's[1, 2] the incidence of postoperative pulmonary embolism and phlebothrombosis or thrombophlebitis in the leg veins took a drop. However, the problem is still with us. It is believed the incidence can be further reduced by equally simple means, namely, a rigid regimen of postural management similar to that used in the treatment of these conditions after they occur.

Interest in this subject was strongly stimulated when a patient who had been seen in consultation suddenly died of pulmonary embolism, and also when another patient on whom a hysterectomy had been performed developed iliofemoral thrombophlebitis. Much has been written on this subject. Mason and Zintel[3] in their fine book, "Preoperative and Postoperative Treatments" state: "Any condition which favors venous stasis of the extremities, such as abdominal distention, tight abdominal binders, pressure on the popliteal space from pillows or elevation of the bed, or tight bandaging of the thighs without inclusion of the lower legs will also predispose to intravascular thrombosis of the extremities. Other factors which may play a role are cardiac disease with its resultant venous stasis, augmented by long-continued bed rest with the patient in Fowler's position, and also preëxisting disease of the veins, such as varicose veins or previous episodes of venous thrombosis. Constitutional diseases such as cancer, obesity, infections, and blood disorders favor venous thrombosis."

Leithauser et al[4] in an article on venous thrombosis in the *J.A.M.A.* of September 22, 1951, stated that: "It has been established that blood sludge, minute sticking clumps of red cells, are present after every surgical procedure owing to the increased coagulability of the blood, and that the recumbent position results in mechanical stagnation of the venous flow." In an article in *Surgical Clinics of North America* in April, 1961, Bjorn Thorbjarnarson[5] stated: "In the prevention of phlebothrombosis it therefore still seems appropriate to pay primary attention to the prevention of stasis and stagnation of blood in the lower extremities."

Many patients after major surgery assume the sitting position or a semi-Fowler's position for long periods of time in order to read, watch television, or talk. This position, when assumed quietly, increases the back pressure on the more dependent venous systems, thereby widening the venous channels and concomitantly slowing the rate of flow through these channels. This sluggish flow increases the chance of spontaneous clotting of blood as it slowly ascends the lower leg veins and pools in the pelvic veins.

Also, postoperatively there is a period of increased clotting tendency of blood which lasts about 10 days.[6] The cause for this is not definitely known. This is thought to be due primarily to the patient's reaction to stress. Variations in this clotting phenomenon work to increase the chance of spontaneous clotting in the leg veins and the pelvic veins, and therefore, secondarily, pulmonary embolism.

For some 15 years the following postoperative routine has been used in almost all of approximately 5,000 consecutive operative cases. The bed is kept absolutely flat at all times except while the patient is eating or using a bed pan. Most patients are able to get up and go to the bathroom. Early ambulation is started within 24 hours of surgery when the patient is physically able to be ambulated. Patients are advised not to sit in the chairs in their rooms for a period of about 10 days, or if they do, for not more than 5 minutes at a time. The nurse supervises deep breathing and leg exercises several times daily. Also, in the last 2 years major surgical patients have worn elastic stockings up to the knee. During these 15 years there has been no case of fatal pulmonary embolism or detectable iliofemoral thrombophlebitis in any patient who has followed this routine. In some patients with a history of previous deep phlebitis anticoagulants or aspirin in doses up to 40 grains per day has also been given.

Illustrative Cases

Case 1. K. T., a 37-year-old Negro domestic, was admitted to the hospital on August 7, 1963. She had had right upper abdominal pain, nausea, and vomiting for 7 days. The pain was initially constant but became intermittent and was aggravated by eating. There was a history of fatty-food intolerance. She had never been jaundiced. She was a known hypertensive and had had some anginal pain dating back 3 years.

Physical examination revealed a very obese, short Negress appearing the stated age of 37. There was an apical systolic heart murmur. Great abdominal tenderness with guarding in the right upper quadrant and epigastrium was present. No masses were felt.

A complete blood count was essentially normal except for a slight increase in the polymorphonuclear leukocytes. A catheterized urinalysis was normal. A fasting blood sugar was 157 mg., the blood urea nitrogen was 14 mg., serum amylase was 60, and the cephalin flocculation test was negative. Initial X-ray examination of the gallbladder showed poor visualization, but a second examination showed better concentration of the dye. A barium enema X-ray examination showed a few sigmoid diverticula. An intravenous pyelogram was within normal limits. The electrocardiogram showed nonspecific ST- and T-wave changes.

The admitting surgical diagnosis was acute cholecystitis, and early cholecystectomy was planned. However, in view of the absence of both fever and leukocytosis surgery was postponed for more complete study. The pain was improved greatly by the second hospital day, but the original symptoms returned by the sixth hospital day. Great tenderness persisted in the right upper quadrant. Accordingly, an exploration and cholecystectomy were performed on August 13. There was chronic cholecystitis without stones. Surgery was well tolerated.

Postoperatively the patient was extremely reluctant to move or ambulate and stayed most of the time in Fowler's position. On the fourth day she was noted to have slight tenderness in her left calf but without a positive Homans' sign. She was afebrile, taking a soft diet. On the fifth day both calves were tender. Heparin administration was started. On the sixth day the patient had a sudden pleuritic pain along the right costal margin anteriorly. Calf tenderness was bilateral, greater on the left, with positive Homans' sign on that side. X-ray films showed what looked like atelectasis at the right base. This was interpreted, in view of her history and leg findings, as a pulmonary infarct due to embolism. She was shifted to Coumadin® and gradually recovered from her acute episode. Serial electrocardiograms showed no change. By the twenty-first postoperative day a roentgenogram of the chest was clear. There was still some tenderness in both calves with a positive Homans' sign on the left. The patient continued to improve and was discharged, September 14, on the thirty-second postoperative day. She is now well and back at work without leg or abdominal complaint.

Case 2. Mrs. N. M. E. was a 76-year-old lady with chronic cholecystitis and cholelithiasis. She had been in poor general health for several years. Although her pain was of low intensity she had suffered right upper quadrant pain on and off for months. At least 3 attacks were associated with nausea and vomiting. There was no history of jaundice or symptoms referable to the lower bowel. About 5 weeks prior to the consultation for gallbladder disease she had sustained a Colles' fracture which was set and nearly healed when seen by me. Although there was generalized osteoporosis with evidence of compression fractures of the dorsal and lumbar vertebrae on X-ray films taken at the time of the Colles' fracture, she had only minimal back complaints. There was some tenderness in the right upper quadrant of the abdomen. X-ray examination showed a functioning gallbladder with stones. Cholecystectomy was done on May 14, 1962.

Postoperatively the patient had a mild paralytic ileus, was disoriented, took fluids poorly by mouth, and was maintained with fluids intravenously for 2 weeks. Thereafter she was up and around on her feet. The previously described routine was used during the immediate postoperative period and for 6 weeks. The patient then became disoriented and uncoöperative. She could not be persuaded to move in bed or get up to walk. She sat for long periods. After approximately 1 month of this inactivity she suddenly had a massive pulmonary embolism and died.

Case 3. Mrs. A. K., aged 49, had an A and P repair on July 1, 1963. Previous surgery had included appendectomy with removal of a cyst from an ovary prior to 1947, bilateral salpingectomy, dilation and curettage, conization of cervix in 1947, and a total hysterectomy and bilateral oöphorectomy in 1952. These procedures were uncomplicated. In 1957 Mrs. K. had an episode of pain in the right leg following injury from slipping on ice, with signs and symptoms of thrombophlebitis. She was treated with anticoagulants at that time and subsequently discharged as improved. She had a recurrence of phlebitis in both legs in 1959. Following the A and P repair in 1963, the previously described routine was followed including elastic stockings. There has been no recurrence of the phlebitis following this operation.

Discussion

It is my opinion that the incidence of postoperative thrombophlebitis and phlebothrombosis, with or without pulmonary embolism, has been considerably lower in the patients who have followed the advocated routine. However, it has not been easy to convince the patients that the head of the bed should not be elevated and that they should not sit quietly watching television or reading for long periods of time in the postoperative period. Nevertheless, when reasons for this positioning are carefully explained to the patient almost all readily agree that the inconvenience is worthwhile. This is particularly so in those patients with knowledge of a friend or acquaintance who has had a pulmonary embolism or phlebitis postoperatively.

During the 15 years that I have requested the described routine for my patients only 2 who followed it carefully had complications which could be called either a lower extremity phlebitis or pulmonary embolism. One was a man in his late thirties who had a ruptured appendix. On the third day he developed right-sided chest pain which was diagnosed as a small pulmonary embolism. There were no signs of phlebothrombosis or thrombophlebitis. Possibly this pulmonary embolus had come from thrombosis of the veins in the operative area. He was treated with anticoagulants and recovered without further complications.

Another patient, on whom I did an inguinal herniorrhaphy, had pain in a leg which came on his third postoperative day and persisted for several days. At no time did he have any swelling of his legs, although he did have calf tenderness. A clinical diagnosis of thrombophlebitis in the posterior tibial vein was entertained. He was given 30 grains of aspirin daily for a period of 2 weeks. He recovered without anticoagulant therapy. Follow-up several months later showed no evidence of phlebitis.

Summary

A method which has been in use for 15 years has been fairly successful in my experience for the prevention of thrombophlebitis, phlebothrombosis and embolism. Illustrative case reports in which the method was not followed have been given, and 1 case report in which the method was used has been given. It is believed that the physiologic changes associated with sitting posture and the changes precipitated by operation combine to produce a situation conducive to postoperative phlebothrombosis and thrombophlebitis. It would seem that the incidence of these complications can be favorably influenced by prophylactic postural management.

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Clinical Center Study of Pinealoma

The coöperation of physicians is requested in a study of children patients with pinealoma, being conducted by the National Institute of Mental Health at the Clinical Center, National Institutes of Health, in Bethesda, Md.

The primary purpose of this study is to determine whether pineal tumors synthesize compounds whose identification would provide diagnostic assistance to the practitioner.

Of particular interest are children who have precocious puberty or evidence of a delay in the onset of puberty (girls aged 15 who have not yet had their menarche). However, information concerning all pinealoma patients is needed in order to determine if further study would be of value.

Hospitalization of the patients in the Clinical Center is not necessary, and they will not have to be examined there. Instead, a brief medical history including pertinent information about the child's gonadal development is requested. If surgery is performed on the patient, a piece of the tumor tissue (which has been frozen soon after removal) would be useful. A urine specimen may be needed from selected patients.

Physicians who are interested in contributing information about their patients for this study may phone or write to Dr. Richard J. Wurtman, Laboratory of Clinical Science, National Institute of Mental Health, National Institutes of Health Bethesda, Maryland 20014; telephone: 49-62457,(area code 301).

Bilateral Brenner Tumors of the Ovaries

A Brief Review of the Literature with Report of a Case

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It was in 1907 that Fritz Brenner[1] described and reported the ovarian tumor that bears his name. Therefore he is given credit for the original description of these tumors. However, he failed to recognize the true nature of these growths and assumed that he was dealing with a form of granulosa-cell tumor. Because of this assumption he called these tumors "oöphoroma folliculari." Although these growths are named after Brenner there are several cases in the literature that preceded Brenner's description of his cases.

Brenner tumors are solid growths and grossly resemble a fibroma. In fact, at operation the gross diagnosis is not infrequently fibroma of the ovary. Some of these tumors are cystic or show areas of cystic formation. However, this represents a degeneration in the tumor rather than a primary cystic morphology. As a rule, the occurrence of Brenner tumors takes place late in the reproductive period of a woman's life. Not infrequently they appear after the menopause. Rarely are they encountered before the age of 30.

The size of these tumors varies from microscopic, discovered incidental to routine examination of surgically removed ovaries, to a tumor weighing several pounds. One Brenner tumor weighing 6.8 Kg. was reported by Neiman[2] in 1936. More recently Ince and Salm[3] reported a tumor that weighed 8.7 Kg. However, large tumors are the exception rather than the rule; the majority of the growths are in the range of 6 to 10 cm. in diameter.

Fairly frequently Brenner tumors are found in association with other types of ovarian growths. A Brenner tumor associated with a pseudomucinous cystadenocarcinoma of the contralateral ovary and a squamous-cell carcinoma of the cervix was reported by Epple and Bossert.[4] Jondahl et al[5] in reporting 31 cases from the Mayo Clinic found several interesting and unusual cases of Brenner tumors in association with other tumors: Brenner tumor in the wall of multilocular pseudomucinous cystadenoma; 2 cases of this tumor in the walls of dermoid cysts; 1 in the wall of a malignant teratoma, and 2 in ovaries that showed evidence of chronic oöphoritis. Rowlands et al[6] reported an interesting case of Brenner tumor simulating Meigs' syndrome with the usual ascites and hydrothorax. There was a complete absorption of the effusion 5 weeks after surgical extirpation of the tumor. This was shown by X-ray examination.

It has been generally accepted that this tumor is usually benign and not a threat to the life of the patient. However, Rawson and Helman[7] mentioned 5 cases of malignant Brenner tumors they found in the literature. To these they added a case of their own. They reported the case of a cancerous Brenner tumor in a 70-year-old woman. At autopsy there were metastatic growths that had invaded the uterus, cervix, vagina, rectum, bladder and left kidney. Abell[8] reported 3 cases of Brenner tumors that were malignant. Reel[9] found 10 cases of malignant Brenner tumors in the literature and reported 1 case of his own. Because of these reports, dogmatic statements that Brenner tumors are always benign cannot be made, since, although the percentage of malignancy is small, a sufficient number of cases have been reported that indicate the presence of malignant potentiality.

This is not a common growth, and to date there have been approximately only 400 Brenner tumors of the ovary reported. Peck and Leary[10] estimated that only 2 per cent of all solid tumors of the ovary are Brenner tumors. They also reported an interesting case in which bilateral Brenner tumors of the ovaries were encountered incidental to a vaginal hysterectomy performed for an unrelated condition.

Of the approximately 400 cases reported only 7 per cent of these were found to be bilateral. Probably this percentage is higher than it should be, since it is possible that a fair number of the unilateral variety are not reported. Therefore, as can be seen, bilaterality is extremely rare.

Novak and Woodruff[11] said, "In rare instances Brenner tumors may be bilateral, although our recent study of 90 cases showed no bilaterality."

Fox[12] collected and reported on 166 cases of Brenner tumors of the ovary. Of this number only 10 were bilateral. To this large number he added 4 new cases of Brenner tumors of the ovary. Surprisingly, in his cases 3 showed bilaterality. Peale,[13] Johnson and Dockerty,[14] and Bungard and Haug[15] each reported 1 case of bilateral Brenner tumor of the ovary.

Christian and Janovski[16] reported a case of bilateral Brenner tumor of the ovaries and gave a histochemical comparison of the morphologic and functional behavior of their case.

Flanagan and Race[17] reported an interesting case of bilaterality of this tumor coëxisting with Krukenberg tumors and with ovarian cystadenomas.

Kendall and Bowers[18] reported a case of bilateral Brenner tumors. They found 23 cases in the literature and reported their case as the twenty-fourth.

Farrar and Green[19] reviewed the literature and found 27 cases of bilateral Brenner tumors of the ovary. To this number they added 2 personal cases. Kretchmar, Dietel and Goodale[20] in 1961 reported 2 cases, bringing the total number reported to 31.

Report of Case

The patient, a 47-year-old white woman, was seen for her regular periodic gynecologic examination. She had no complaints. The past history and general physical examination were noncontributory except for an appendectomy and tubal ligation performed 15 years ago. Her menstrual history revealed no abnormal bleeding, the menarche beginning at age of 12 with a 24 to 26 day cycle with the flow moderate and lasting 4 days. Her periods at this time were following the same pattern. On examination the vulva showed no abnormalities, and the cervix revealed a mild endocervicitis. A Papanicolaou smear was taken and was reported as showing no malignant cells. The uterus was in the anterior position, freely movable, and symmetrical, with no apparent enlargement. The right adnexal region showed no demonstrable thickening or mass. In the left adnexal region there was a hard, slightly irregular, freely movable mass 6 to 8 cm. in diameter. This was interpreted as ovarian. Operation was advised, and the patient entered Sibley Memorial Hospital on May 14, 1962. Operation was performed on May 16, 1962.

Through a low mid-line incision the peritoneal cavity was opened. Exploration of the upper abdomen revealed no abnormalities. Several adhesions from the previous operation were freed without difficulty. The right ovary was slightly sclerosed and somewhat small. The uterus showed no abnormality. The left ovary was completely replaced by a very hard irregular tumor, 6 to 7 cm. in diameter. This tumor was freely movable. At this time, because of the stony consistency, a diagnosis of fibroma or calcified ovary was made. Bilateral oöphorectomy and total hysterectomy seemed to be the procedure of choice. Accordingly, this operation was carried out.

The postoperative course was uneventful except for a mild emotional reaction. The patient complained of vague sensations throughout her whole body, inability to get her breath, sensation of a lump in her throat which she could not swallow, and choking sensations. However, since there was no morbidity she was discharged on May 26, 1962 to her physician for treatment of her emotional instability. This lasted about 6 weeks, with full recovery. Postoperative examination at about the eighth week showed a deep vagina with healed cuff and clean pelvis.

The removed tissues consisted of a uterus, both fallopian tubes, and the ovaries. The uterus and fallopian tubes showed nothing of interest. One ovary measured 3.5 cm. in its greatest dimension. The external surface was yellowish-pink with a lobular pattern. On section there were seen several cystic structures containing clear fluid and lined by yellowish, thick material. In one section there was seen one structure which measured 1 cm. in greatest dimension which was very firm. The other ovary measured 5.5 cm. in its greatest dimension. The external surface was yellowish-pink and smooth with numerous congested blood vessels. On section the cut surface was extremely firm, whitish-pink and showed a trabecular pattern. The external surface was pinkish-gray with numerous dilated blood vessels. Sections of both ovaries revealed areas in which there were seen nests of cells exhibiting clear cytoplasm and having round to ovoid nuclei. These cell groups were supported by interlacing bundles of dense tissue composed of spindle-shaped cells (figures 1 and 2). Sections from one of the ovaries revealed a corpus luteum within the ovarian stroma. The pathologic diagnoses were chronic cystic cervicitis, secretory endometrium, and bilateral Brenner's tumor of the ovaries.

Discussion

Brenner tumors are a relatively rare tumor of the ovary. Novak[21] thought that Brenner tumors do not elaborate any estrogen and so have no effect on the endometrium. This is generally accepted today. However, Eton and Parker[22] reported 5 cases that had associated endometrial abnormalities, such as cancer of the endometrium, endometrial hyperplasia, and nonatrophic postmenopausal endometrium. In all probability these findings are coincidental. Nevertheless, it is thought by some that these tumors have an origin to that of the granulosa-cell tumor and may thus have some estrogenic action. Therefore, these authors believe that there is a possibility that in their 5 cases there is a relationship between the Brenner tumor and the endometrial abnormalities. They, however, think that further investigation should be undertaken before this condition could be accepted without reservation.

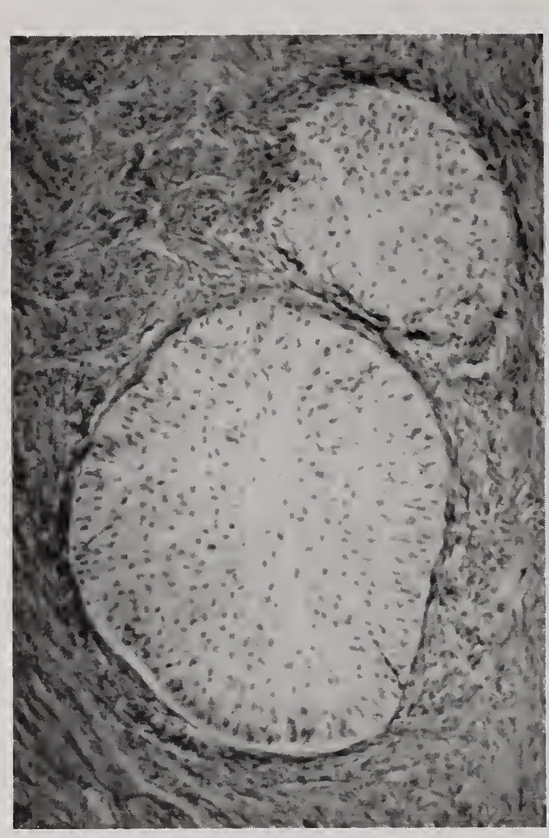

FIG. 1. Photomicrograph of right ovary showing typical epithelial islands in fibrous stroma.

Jakobovits[23] in presenting 9 miscellaneous ovarian tumors producing hormones cites a Brenner tumor which he believes caused cystic hyperplasia of the endometrium with bleeding in a 63-year-old woman. He found swollen theca-like cells in the stroma of the tumor.

Up to recent times it has generally been accepted that these tumors originated from the Walthard cell mass, as described by Meyer.[24] However, various investigators recently have attempted to show that the origin of these tumors may not be the Walthard rests.

Quite recently Arey[25] discussed the various possibilities that these tumors may originate from germinal epithelium, from rete ovarii, from teratomas, and from ovarian stroma. He reported 2 cases of early Brenner tumors which he studied carefully and came to the conclusion that the origin of this tumor was from the germinal epithelium of the ovarian surface.

Further investigation may in time eliminate the obscurity and confusion that is now prevalent regarding the origin of this tumor.

These tumors are symptomless except for the rare case that attains a large size and results in producing pressure symptoms. Any other symptoms, as uterine bleeding, pain, etc., are usually due to coexistent pelvic lesions. In fact, not too infrequently operations performed for pelvic disease causing symptoms may result in finding a coexisting asymptomatic Brenner tumor.

Diagnosis is rarely made preoperatively. Fibroma is the usual diagnosis at operation, and the correct diagnosis is made apparent when the pathologic examination reveals the true nature of the tumor.

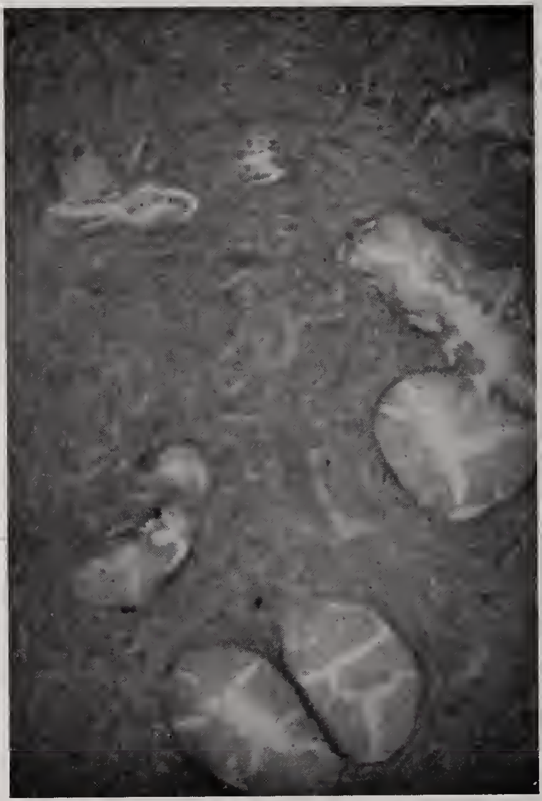

FIG. 2. Photomicrograph of left ovary. Low-power view of several epithelial cell nests in fibromatous stroma.

Summary

Brenner tumor of the ovary is a relatively rare tumor, the origin of which is still not clear. This tumor may occur alone or in combination with all or any of the more common types of tumors that are found in the ovary, both benign or malignant.

Until recently no functional properties have been attributed to the Brenner tumor. However, several articles point out the possibility of estrogen-like action on the endometrium. Except for this the tumor is an asymptomatic growth.

Although in most instances this is a benign growth, it does have a potential to become malignant, and 10 such cases are found in the literature.

Preoperative diagnosis is seldom made, and until the pathologic examination reveals the true nature of the tumor, fibroma of the ovary is the usual diagnosis.

Bilateral occurrence of Brenner tumor is very rare, and this is the thirty-second case to be reported.

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AMA-ERF Versus Government Loans to Medical Students

The American Medical Association Education and Research Foundation calls attention to an article which appeared in the January 4, 1964 issue of JAMA, pages 47–51, concerning recently passed legislation authorizing a Government loan program for medical students. The article makes comparisons between the Government Loan Program and the AMA-ERF Loan Program in regard to costs, coverage and trends. Interest rates and the costs which go into securing and lending funds are explained. Reprinted below are some of the important differences between the 2 programs.

"The AMA-ERF Program has the following features:

1. Interns, residents, and medical students are eligible to borrow up to $1,500 a year and up to $10,000 for an entire training period.

2. No payments are required until 5 months after completion of all full-time training, including internship and residency.

3. Medical schools and hospitals are not required to put up matching funds or to make collections.

4. There is no limit on available funds. Banks will loan $12.50 for each dollar contributed to the Loan Guarantee Fund. Contributions typically keep pace with loan demands.

"The Government Program has these provisions:

1. Medical students, dental students, and osteopathic students are eligible applicants—but not interns or residents. The maximum loan is $2,000 a year. Furthermore, in granting loans a school shall give preference to persons who enter as first-year students after June 30, 1963. A further provision prohibits use of these funds in combination with National Defense Education Act (NDEA) funds.

2. Repayment of loans begins 3 years after completion of school. In many cases this could mean a borrower would begin repayment while still in residency.

3. Schools are required to put up $1 for every $9 allocated by the Government. Schools are responsible for collections."

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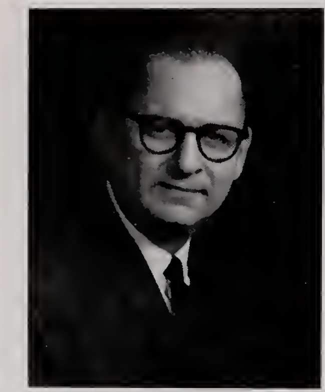

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Report on 1963 Clinical Meeting of AMA House of Delegates*

In one of its first actions the House expressed its shock at the tragic death of our late President John F. Kennedy and directed a letter of heartfelt sympathy to his widow and family. It also offered President Johnson the Association's resources, counsel and coöperation in matters of health to aid in forging national unity in the future.

Dr. Edward R. Annis, AMA President, in reporting on the hearings of the House of Representatives' Ways and Means Committee on the King-Anderson Bill, told the House: "The combined testimony of the American Medical Association, the state societies and our allies made a far greater impact on the members of the Committee, friend and foe alike, than at any other time in the history of this long and bitter conflict."

Dr. Annis also reported that under questioning from Committee Chairman Wilbur Mills, actuaries of the Department of Health, Education, and Welfare admitted that the program of tax-paid hospitalization and related benefits for the aged proposed in the King-Anderson Bill would require a tax rate twice as high as they have previously claimed.

Tobacco and Health

Because of the many gaps existing in knowledge about the relationship between smoking and health, the Board of Trustees proposed that a comprehensive program of research on tobacco and health be undertaken by the American Medical Association Education and Research Foundation.

The House approved this proposal and directed that the study should be "devoted primarily to determining which significant human ailments may be caused or aggravated by smoking, how they may be caused, the particular element or elements in smoke that may be the causal or aggravating agent, and methods for the elimination of such agent."

The project will be financed by a $500,000 contribution from the AMA but unrestricted funds from other sources are sought.

AMA Constitution and By-laws

Comprehensive revisions and rearrangements of the Association's Constitution and By-laws were approved. These had been introduced at the June meeting, and because of their length and the fact that they will be published at length in the J.A.M.A. will not be detailed here. Suffice it to say that the word "Constituent" as applied to elements of the Association has been changed to "State" so that the Medical Society of the District of Columbia is now a "State" Society. New types of membership have been created, and a method for the successor to the President to assume the office of President if the President dies, resigns, or is removed from office was included among numerous other changes.

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* This report is a summary of actions of the House of Delegates which met during the 1963 Clinical Meeting of the American Medical Association in Portland, Oregon, December 1–4, 1963.

Negro Physicians

A Board of Trustees' report relative to hospital staff privileges for Negro physicians was adopted with the statement that "members of the medical staff of every hospital, where the admission of physicians to hospital staff privileges is subject to restrictive policies and practices based on race, be urged to study this question in the light of prevailing conditions with a view to taking such steps as they may elect to the end that all men and women professionally and ethically qualified shall be eligible for admission to hospital staff privileges on an equal basis, regardless of race."

The House then rejected a resolution which would have denied the rights and privileges of AMA membership to members of any State or County Society which refused membership to any qualified physician because of race, religion, or place of national origin. In doing this the House reaffirmed its policy action of 1950 and 1952 and directed that a copy of the 1950 resolution be sent to each County and State Society. That resolution urged that "constituent and component societies having restrictive membership provisions based on race study this question in the light of prevailing conditions with a view to taking such steps as they may elect to eliminate such restrictive provisions."

Voluntary Health Agencies

The House approved a report of the Board of Trustees on professional relationships with voluntary health agencies. It stated definitely that the AMA should maintain its policy of neither approving nor disapproving national health agencies. It agreed that the AMA through its Committee on Voluntary Health Agencies, now elevated to the status of a Council in the AMA structure, maintain its position of offering guidance on medical aspects of national voluntary health agency programs.

The newly approved "Principles for Medical Guidance of National Voluntary Health Agencies" contains a new definition of a voluntary health agency and the objectives of the Council on Voluntary Health Agencies, as well as a list of suggested mutual obligations between the AMA and national voluntary health agencies.

Blood Banks

Because of the rapid expansion of blood-banking facilities in the United States the House adopted a policy statement to the effect that "it is highly essential that the organization of new blood-banking programs and the modification of the existing ones should have, in the interest of public health and safety, the approval of the county or district medical society and, therefore, should be coördinated with existing approved blood-banking facilities." The House further recognized and stated that "since a blood bank can well be considered a medical facility, the top authority in a blood bank should be a physician."

Miscellaneous

The House received a report on the AMA Members Retirement Plan. This urged that physicians act quickly if they are to exercise their rights under Public Law 87–792 during 1963.

It reaffirmed the position of the Association in opposition to the inclusion of self-employed physicians under Social Security.

It resolved that the AMA attempt to have removed from the Kefauver-Harris Amendment those provisions which authorize the U.S. Food and Drug Administration to determine the effectiveness of drugs.

It approved the "Guides to Medical Society Committees on Aging" and urged that the term "the aging" be used instead of "the aged" in all statements by the medical profession regarding older persons.

Of interest to those who are members of hospital medical records committees should be the approval of a "short form medical record" which may be used in cases of a minor nature and, in general, should apply to hospital stays of 48 hours or less.

In approving the report of the Reference Committee on Insurance and Medical Service, the House adopted Resolution No. 5 (C-63) introduced by the Pennsylvania delegation, the final portion of which read: "RESOLVED: That any assignment or donation of such fees, whether from the individual's own resources or from some prepayment insurance plan, shall be, without any pressure or coercion from other sources, solely at the discretion of the attending physician." The Reference Committee stated that in its opinion that portion of the resolution reaffirmed the right of the individual physician to exercise at his own discretion the disposition of his own income.

Just prior to departing for the West Coast your senior delegate was informed of the sudden illness of Dr. C. Willard Camalier, now happily recovered, who was to accompany him. On arrival

(Continued on page 92)

PRESIDENT'S PAGE

NEW LIAISON COMMITTEES

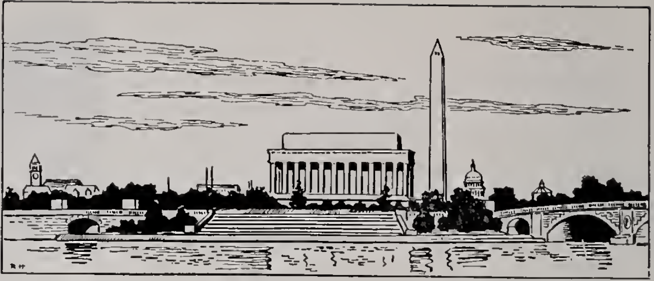
A Medical Society serves its members, the public, and local agencies and organizations in a variety of ways. Most of those it serves neither care nor appreciate this fact until he, she, or they are directly affected or involved.

Liaison with those who are, or should be, concerned has not always been directly possible through the Society's organizational arrangement. In view of this I have asked the Executive Board to approve several new committees to bring together those concerned with medicine, medical education, and medical care. At present these are the Committees on Hospital Relations, Medical School Relations, Liaison with Voluntary Health Agencies, Liaison with Allied Professions, Medical-Legal Problems, and Liaison with Federal Agencies.

I believe the titles are self-evident as to those involved. In answer to some who have raised questions—and eyebrows—I want to make it clear that these are not committees to investigate or try to extend control. Their purpose is to try to bring closer together the various elements in the District of Columbia who have an interest, concern, or activities which relate to the objectives of this Society and its individual members. It is my hope that for the first time we can provide a setting for discussion of aims, problems, and possibly the methods for their accomplishment or solution.

All of those within the Committees' purview draw or rely upon our members for assistance, advice, and even the conduct of their activities. It simply makes sense to me that we should have a sensible and official means for communication between us. I hope you agree with me and that I shall have your coöperation during the coming year.

Edward W. Kicklas



EDITORIALS

Coronary Artery Disease—A Continuing Problem

There is no indication that this will not always be so. Despite the advances in medicine which have resulted in an increase in life expectancy, cardiovascular disease, particularly coronary artery disease, will continue to represent a major problem, because this is a natural sequence of the aging process. The question is whether we can do something to prevent or allay the development of symptomatic coronary artery disease. Also, what are the causes which one can avoid if possible?

Everyone will accept the fact that coronary artery disease occurring in old age is a frequent, expected complication, but it is in those instances where it is occurring at a younger age, especially in the age group of the 40's and 50's, that it is difficult not only to accept the realization of the high incidence but the possibility that it is on the increase.

The problem of coronary artery disease is a complex one and it is small wonder that the layman is confused. He may read in a newspaper or a magazine, after a national medical meeting, such as the annual meeting of the American Heart Association, that coronary disease, or "heart attacks," may be related to a specific factor. For example, one year a paper will present evidence that heart attacks may have some relation to fats in our diet. Another year, scientific discussion, stressed in the same news media, will imply that tensions or the fast pace of life under which we live in our modern society play a role. Reported in recent years to the layman as well as to the physician were studies indicating that heart attacks were more common in business executives than in their employees due to the increased stress and tensions in the lives of the former. Another report coming from still another meeting implicates the individual with the stocky build; at other times exercise, or lack of it, and its relation to heart disease is emphasized. Exercise and heart disease has been a frequent topic of discussion during the past several years.

In a comparatively short period of time we have seen our Nation's grocery stores featuring "unsaturated" oils and margarine, skimmed milk, etc., whereas a decade ago these would have had little sales value. At present there is much interest in the question of smoking, particularly cigarettes, as a contributing factor.

Frequently we physicians have heard our patients say, "I can't understand why I had this heart attack. I have been on a low-fat diet for the past 2 years." Or, possibly, more likely will be heard in the future, "I gave up smoking cigarettes several years ago." It is little wonder that the patient is confused, because we physicians are unable to give him a clear picture of a problem which is such a complex one.

However, it has become increasingly evident with the passage of years that coronary artery disease is not usually related to a single cause but to a combination of etiologic factors. In explaining this to a patient, a simple analogy is to compare the disease with the blocks of tile used to make floors. (Such tile floors are so common in our modern buildings that every patient is familiar with them.) If we look at 1 block it is difficult to see the complete floor pattern. In the same way various "blocks" contribute to the "floor pattern" of coronary artery disease. Some of the more important are: increased frequency in males as compared with females (particularly the menstruating female. Male hormone may predispose whereas female hormone may protect.), fats in diet, overweight, lack of exercise, body build

Opinions expressed in contributions to the Editorial Section are those of the writers and do not necessarily reflect the views of the Medical Society of the District of Columbia

(mesomorph), family history, diabetes, hypercholesterolemia, tensions, emotional upsets, strenuous exercise, hypertension, race, hypothyroidism, hyperparathyroidism, smoking, alcohol, etc. By putting these with other predisposing factors (or "blocks") and looking at the entire picture rather than one "block," coronary disease can be more easily understood. Patients appear to comprehend from this analogy why it is difficult to single out 1 predisposing factor.

Can we alter any of these factors? Certainly, some. One can reduce his weight and keep it down. This can be accomplished by eating a low-fat diet (one of the aforementioned factors) although it is not necessary that a fetish be made of this diet. One may alter his way of life to reduce a number of unnecessary tensions. He may exercise in moderation, at the same time avoiding strenuous exercise when he is not used to it. Examples can be cited of individuals who had acute myocardial infarctions believed to have been precipitated by strenuous exercise or effort; had they not been engaged in that type of strenuous activity it is likely that this would not have occurred at that time. Concerning physical activities, an old-fashioned rule is "Do what you do in comfort," avoiding extremes of exertion in extremes of weather. The medical control of diabetes and hypertension and moderation in the use of alcohol, eating and smoking (or elimination of the latter) all have to be prescribed with the individual patient in mind. Other factors obviously cannot be altered, such as his family history, race, or sex.

It is of importance, therefore, that some of the predisposing factors can be altered, and this gives the patient a more hopeful outlook and positive approach than the opposite, that nothing can be done to alter his situation. Probably even more important is to work on altering or eliminating some of these "blocks" or predisposing factors before there has been any symptom of coronary disease or heart damage. Advice frequently given to patients after they have had a heart attack is often just as applicable to those who have never experienced it.

The old saying, "An ounce of prevention is worth a pound of cure," is particularly apropos to coronary artery disease. There is no indication that the need for this advice will decrease, because coronary artery disease is a continuing problem now and, predictably, in the future.

W. Proctor Harvey, M.D.
President, Washington Heart Association

Recruitment of Medical Students in the Greater Metropolitan Area

Today the strong attraction which the medical profession offered to the high school student a decade ago has decreased to an alarming extent. Yet the demand for physicians is greater than ever. *U.S. News and World Report* cited some alarming facts in its March 25, 1963 issue. In a recent report to a Congressional committee, Dr. Luther L. Terry,[1] Surgeon General of the U.S. Public Health Service, stated that 1 physician for every 1,000 people is necessary in order to render adequate medical care. Yet, in a survey conducted in 1960, it was determined that more than two-thirds of the counties in the United States fell far short of this minimum, some having 1 physician for every 2,000 or more people. In summation, the Federal Government says that United States medical schools must graduate at least 11,000 new physicians by 1973 if they expect to keep pace with the growing population. This means a 50 per cent increase over the number of physicians that are now graduating.

Not only is there a quantitative problem but, at the same time, a qualitative one. In 1950 the number of "A" college students applying to medical schools numbered a healthy 40 per cent. Today this figure is less than 10 per cent. It is obvious that something must be done to reverse this trend. Medical educators agree that an answer will not be found until a successful recruitment plan is devised and implemented on a national scale.

One method of recruitment that is meeting with encouraging results is the formation of Future Physicians Clubs in various high schools throughout the country. The formation of these clubs is highly recommended by the American Medical Association. Some of the many cities and counties now actively engaged in this method are Indianapolis, Indiana; Syracuse, New York;

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[1] Health Professions Educational Assistance Hearings before the Committee on Interstate and Foreign Commerce, House of Representatives, 88th Congress, 1st Session, on H.R. 12, H.R. 180, H.R. 3182, Bills to increase the opportunities for training of physicians, dentists, and professional public health personnel, and for other purposes; H.R. 3180, a Bill to authorize a 10-year program of grants for construction of medical, dental, and public health educational facilities, and for other purposes. February 5, 6, 7, 1963, pp. 91, 95, 96.

Albuquerque, New Mexico; and Essex County, New Jersey. It is estimated that there are some 300 of these clubs now in existence.

It is believed that many young men and women start to make important decisions in respect to their future vocations in life in the last 2 years of high school. Thus the medical recruiter believes he should concentrate on students at this level of education. The idea of high school clubs directed toward future professional careers is not a new one. Chemistry clubs, physics clubs, and journalism clubs, as well as many other types of clubs have been in existence for some time. These clubs have the beneficial effect of keeping the student continuously stimulated in the field of his possible future endeavor. Why should a future physicians' club not be started in all high schools where and when it is humanly possible? There is no doubt that the students interested in a medical career are there. All that is needed is the initiative of interested physicians working with an equally interested faculty moderator.

During the past year and a half, with these concepts in mind, a 2-phase medical recruitment program was launched in the Washington Metropolitan Area. The first phase consisted of a seminar program conducted at Georgetown University Hospital in the spring of 1962. It was held on 3 successive Sundays between the hours of 1 and 3 o'clock. Among the discussants were Georgetown premedical and medical students as well as resident physicians and physicians engaged in active practice.

Because those who were setting up the recruitment program had much to learn, it was decided that it would be best to center attention on only 1 high school for the first seminar. Gonzaga High School was chosen and, consequently, most of the students taking part in the initial series were from Gonzaga. A similar series of seminars was held in the spring of 1963, and students from 9 metropolitan high schools participated.

The seminars attempted to anticipate what questions a high school student who was seriously considering medicine as his future career might ask. The first session tried to answer the following questions:

1. What college courses are available to the premedical student, and what is the best choice in respect to these various courses?

2. What financing is needed for his premedical and medical education, and what, if any, are the opportunities available to meet this financial need?

3. What is the importance of college entrance examinations?

The second session was mainly concerned with what the student could expect in medical school and what decisions he would face upon graduation. Such questions as the following were discussed in this session:

1. What are the courses taken in medical school and what are the duties of the medical student in his clinical clerkship years?

2. What happens after graduation? (Here the various internship and residency programs were discussed.)

The final seminar was directed toward career choices in medicine. Included among those choices were general practice, specialty practice, medical administration, medical education, medical research, and Government medical programs.

Judging from the question-and-answer periods which followed we believe that these sessions captured the interest of these young men and introduced them seriously to the field of medicine. Regardless of the success of the seminar program, however, it is only the first step in recruitment.

The second phase consisted in the actual formation of a Future Physicians Club at Gonzaga High School. We were most fortunate in securing the services of the Reverend Robert Mullin, S.J., who agreed to act as the Club's faculty moderator. His interest and enthusiasm were vital to the success which the Club later achieved.

In organizing the group we attempted to follow the program outlined by Future Physicians Clubs now established in other cities. Most of the students who had attended the seminar program formed the nucleus of the Club. Meetings were held monthly for interested sophomore and junior students. Freshmen were considered too young and consequently were not admitted. Senior students were not considered the first year because of the short amount of time we would have to work with them.

The Club's membership totaled between 20 and 25 students. In order to be admitted to the Club a student must have and maintain a "B" or better academic average. (This criterion is considered necessary in order to obtain the quality student in whom we are interested.)

The first year's program consisted of medical lectures, movies, and hospital visits. For example, early in the year the Gonzaga High School Future Physicians Club spent a valuable afternoon at Children's Hospital. The members were divided into 4 different groups of 4 or 5 students each.

One group, with the author, surveyed the Emergency Room and the Outpatient Department. A second group, accompanied by Dr. Robert H. Parrott, the Hospital's Director, spent their time in the research building. The third and fourth groups, under the guidance of Dr. Charles E. Fierst, head of the Department of Anesthesiology, and Dr. Everett Lovrien, Chief Resident, were shown the operating rooms and the hospital wards. The students were encouraged to ask as many questions as they pleased. The majority of questions indicated a searching interest in the what, how, why, and where of "medicine in action." After the tours were completed the Club met in the hospital conference room and 1 student from each group reported to the others on what he had seen and, hopefully, learned.

During the latter part of the school year the Club met twice at Georgetown University Hospital, where members visited the Departments of Cardiology and Neurology. Here the students were introduced to the stethoscope, electrocardiography, and electroencephalography. They listened to their own and their classmates' heartbeats. They saw how an electrocardiographic tracing was accomplished; in understandable terms, its use was explained to them. Dr. Modestino G. Criscitiello and Dr. Eugene Edwards moderated these visits.

Members of the club also attended movies and lectures of medical interest, including talks by such prominent physicians as Dr. Charles A. Hufnagel and Dr. Lawrence S. Lilienfield.

It should be possible to expand the concept of the Future Physicians Clubs and to establish them in other schools in the Metropolitan Area. Nine high schools participated in the most recent seminar program, and in these high schools interest may most likely be kindled.

In conclusion, it is hoped that Future Physicians Clubs will be established in all high schools throughout the Washington and surrounding Maryland and Virginia areas. This method of recruitment should prove effective toward satisfying both the quantitative and qualitative needs for physicians. The interested and qualified youth are here, but it is the physician who must introduce them to our profession. In this respect we are in direct competition with other fields of endeavor. With the recent advances in science and technology more and more interesting and challenging positions are being created. It is my hope that this article will reach physicians who are as concerned about this problem as I am, and who are interested in participating in an organized program of medical recruitment.

Joseph C. Evers, M.D.

6006 Dinneen Drive
McLean, Virginia

Health Dept. Notes

Medical Training at D.C. General Hospital

Active teaching programs at D.C. General Hospital cover a wide range of professional specialties and services. The programs are clinically oriented and provide experiences in the various phases of patient care which are appropriate to the specialty of the participating individual. Medical students, physicians, dentists, nurses, and occupational and physical therapists are included in the teaching programs.

Junior and senior students from the 3 local medical schools (Georgetown, Howard and George Washington) spend most of their time in the various hospital services and are under the supervision of their own faculties.

Lectures and clinical demonstrations are presented during the early weeks of the junior year, and by the time a student reaches his senior year there are opportunities to work on the wards with interns and residents as part of a "team." These activities are supplemented by numerous conferences and ward rounds.

The D.C. General Hospital has an assigned quota of 56 interns divided among the 3 medical schools. The internships are either "mixed" or "straight" programs in medicine and/or surgery. There is a provision in some programs for intern training in Obstetrics-Gynecology and Pediatrics, as well as in other medical and surgical subspecialties. The intern has primary responsibility for patient care, working under the close supervision of the residents and medical officers.

Approximately 110 resident staff personnel participate in approved residency training programs in all of the major medical and surgical specialties—Obstetrics-Gynecology, Pediatrics and Psychiatry. In addition to patient care responsibilities, residents participate actively in the teaching program of interns and medical students and in some instances conduct clinical investigation research.

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The medical officers and members of the staff who either conduct or supervise the various facets of the teaching programs are all Board-qualified or Board-certified in their specialties and hold faculty appointments at one of the 3 medical schools.

From time to time throughout the year the Medical Divisions of the Hospital arrange for an outstanding medical specialist to speak to the staff. These lectures are open to members of the medical community.

The dental program provides for both intern and resident training.

The Capital City School of Nursing is a fully accredited and well recognized School of Nursing, which offers a 33-month diploma-type program. The present enrollment is 137 students. The classroom teaching is conducted in the Nursing School and clinical experience is obtained in the various units throughout the Hospital. About two-thirds of the graduates remain at D.C. General as staff nurses.

Schools which provide training for occupational therapists and physical therapists have established affiliations with D.C. General Hospital to provide practical experience and training for their students. These affiliates participate in the work of their respective departments. The affiliates make valuable contributions to the rehabilitative efforts of the Hospital, as well as receiving training which better qualifies them for their work.

Students in Social Service affiliate at the Hospital for a year of "case work" experience. The volume and variety of Social Service problems encountered make this an extremely valuable portion of their training.

Teaching activities, conducted in the Hospital, create an academic atmosphere which greatly enhances the ability of the Hospital to carry out its primary responsibility of patient care. The 3 inseparable elements of a good modern hospital—patient care, teaching and research—are developed to a high degree and in this way help to provide the community with a first-class municipal hospital.

MURRAY GRANT, M.D., D.P.H.
D.C. Director of Public Health

Medical Journalism Awards

THE AMERICAN MEDICAL ASSOCIATION has announced a $5,000 medical journalism awards program "to recognize journalism that contributes to a better public understanding of medicine and health in the United States." These awards, of $1,000 each, will be presented for outstanding reporting on health and medicine in 5 categories—newspapers, magazines, radio, television, and in newspaper editorial writing. They will be presented for the first time in 1965, based on work published or broadcast during the calendar year of 1964.

Entries may be sent to the 1964 Medical Journalism Awards Committee, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois. This Committee, which will include outstanding members of the publishing, radio and TV industries and the medical profession, will judge the entries on a basis of accuracy, significance, quality, public interest, and impact. Deadline for entries is February 1, 1965, although they may be submitted at any time prior to that date.

Newspaper and magazine articles should be submitted in triplicate, validating date of publication and showing the material as it was presented to the public. Entries for radio or television should consist of 3 copies of the complete script and a 200-word summary of the script, together with film or kinescope of television entries and audio tape or transcription of radio entries. Any number of entries may be submitted.

Each entry should be accompanied by a statement listing its title, writer or producer, publication in which the article appeared or station or network over which program was broadcast, date entry was published or broadcast, category for which entry is submitted, name, address and title of person submitting entry. Radio and television films, tapes or kinescopes will be returned if requested.

DOCTOR—REMEMBER!

Chemotherapy may be of value in the treatment of malignant neoplasms.

Commonly used Chemotherapeutic Agents are:

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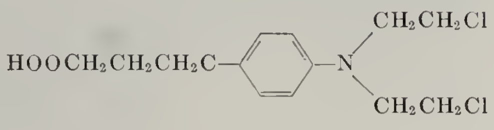
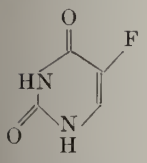


p-di (β-chloroethyl) aminophenylbutyric acid

5-FU



5-Fluorouracil

Methotrexate has produced some five-year cures in the treatment of the highly malignant Choriocarcinoma of the Uterus.

Other malignancies showing some response to chemotherapy are Leukemia, Wilms' Tumor, Retinoblastoma, and advanced cancers of the breast, colon, rectum, ovary, stomach, pancreas and liver.

Adequate supportive care and constant evaluation of the hematopoietic and gastrointestinal systems are important during therapy.

The brochure, "Cancer Chemotherapeutic Agents," by David A. Karnofsky, M.D. is available to physicians upon request.

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"The average practitioner is quite capable of handling the vast majority of ex-institutionalized patients by regulation of medication, reassurance, manipulation of the environment where necessary, and . . . other technics." Kline, N.S.: Postgrad. Med. 27:620 (May) 1960.

The family physician must often assume responsibility for the discharged mental patient. Thorazine (chlorpromazine, SK&F) can be a valuable adjunct to the continuing care of this patient, because it helps prevent relapses by insulating him from the impact of stressful experiences. For successful rehabilitation and prevention of rehospitalization, however, the former mental patient—and often his family—also needs the guidance and counsel of his physician.

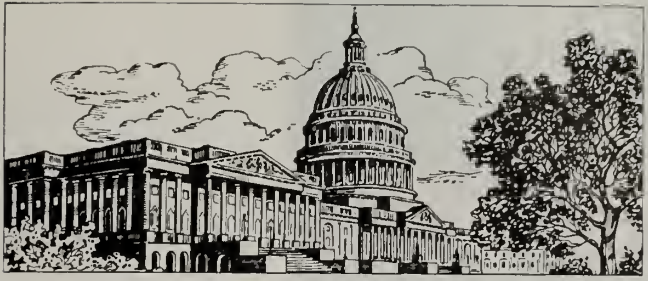
Many physicians are surprised by the high doses of Thorazine (chlorpromazine, SK&F) used in patients released to their care from mental hospitals. This surprise may be expressed by a drastic reduction in dosage "to play it safe"—with serious consequences for the patient.

The successful maintenance of former mental patients requires adequate, often "high" dosage, and often for prolonged periods of time. Fortunately, these dosages do not mean greater risks for the patient. On the contrary, there is much less risk of serious side effects once a patient has become gradually accustomed to Thorazine (chlorpromazine, SK&F)—*regardless of dosage*—over a period of a few months. Continuing therapy is almost always well tolerated, and is essential to most patients' continued well-being.

Brief Summary: Thorazine (chlorpromazine, SK&F) has been successfully used for 10 years in the treatment of mental and emotional disturbances, and has proven highly effective in the maintenance therapy of former hospitalized mental patients. *Principal side effects:* The most frequently encountered side effect is transitory drowsiness. Other occasional side effects include: dry mouth, nasal congestion, constipation, miosis, dermatological reactions, photosensitivity, jaundice, hypotension, increased appetite and weight; very rarely, mydriasis, agranulocytosis, extrapyramidal symptoms. *Contraindications:* Comatose states or in the presence of excessive amounts of C.N.S. depressants.

For complete prescribing information, please see *PDR* or available literature.

SK&F *Smith Kline & French Laboratories*



NEWS & PERSONALS

Boards & Committees

The December 17, 1963 meeting of the **Executive Board of the Medical Society of the District of Columbia** was held at the home of the retiring Chairman, Dr. W. LeRoy Dunn. Present were Drs. Victor R. Alfaro, C. Willard Camalier, Jr., Karl C. Corley, J. Spencer Dryden, Grace H. Guin, Raymond T. Holden, Edward W. Nicklas, Duane C. Richtmeyer, J. Rogers Young, and Mr. Fred Trust, Assistant Secretary. The Chairman called the meeting to order at 7:30 p.m.

Committee Meetings: The Assistant Secretary reported the following committee meetings held since the Board last met:

November	26	Grievance Committee
	26	House Committee
December	4	House Committee
	6	Review Board for Prepaid Medical Care Benefits
	11	Board of Credentials
	17	House Committee
	17	Grievance Committee

House Committee: Dr. Alfaro reported that there was no additional information to be disclosed to the Executive Board due to the lack of response from the Washington Hospital Center and Sibley Memorial Hospital to the Medical Society's inquiry into the specifics related to verbal indications that a site might be made available to the Medical Society on their respective locations. Dr. Alfaro went on to explain that due to the lack of response from the hospitals, all decisions and actions were held in abeyance.

Discussion ensued regarding the increasing cost to the Medical Society due to further delays in the selection of a new site. Therefore, the concern of the Executive Board was indicated by the passage of a motion wherein the Board suggested to the House Committee that the selection of a property to be utilized for a site for the new Medical Society building be expedited in order to conserve costs which might otherwise be incurred due to further delay.

Delegates' Report on Clinical Meeting: Dr. Holden reported on the AMA Clinical Meeting, held in Portland, Oregon, on December 1–4, 1963. The report is published in this issue of the MEDICAL ANNALS.

Board of Credentials: The following recommendations of the Board of Credentials were approved:

Active Members

Robert Taylor Dibble, 3805 Georgia Avenue, N.W.
John Mellichamp Fearing, 1610 New Hampshire Avenue, N.W.
Stanley Albert Forster, 1330 New Hampshire Avenue, N.W.
Garth Louray Jarvis, 2121 Pennsylvania Avenue, N.W.
Peter Van Cortland Moore, Children's Hospital
John Francis Shay, 4221 South Capitol Street
Will Lester Williams, 4810 C Street, S.E.
David Arthur Zohn, D. C. General Hospital

Associate Member

Kenneth Alan Simon, 8218 Wisconsin Avenue, Bethesda, Md.

Affiliate Members

Charles Martin Aaronson, 1110 Spring Street, Silver Spring, Md.
Alfred Alexander Leszczynski, 8634 Colesville Road, Silver Spring, Md.

Resident-Intern Members

Giulio Italo Scarzella, Washington Hospital Center
Herman Robert Schoenwald, 5517 Maxwell Drive, S.E.

Reinstatement

Associate: John D. Archer

Resignations

Active: Harrison E. Curtis
Associate: Harold S. Tidler

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in coughs
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REUTER—ATLAS OF UROLOGIC ENDOSCOPY
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Section on Pediatrics: The Chairman of the Board read the following report from the Section on Pediatrics: "The members present for the meeting of the Section on Pediatrics unanimously voted to recommend the favorable consideration of the resumption of planning a community-wide program for giving the 3 strains of the oral poliomyelitis (Sabin) vaccine. It is requested by Dr. Allan B. Coleman, Chairman of the Section on Pediatrics, that appropriate action be initiated to accomplish this purpose. However, at the Public Health Committee meeting of October 29 no agreement was reached as to the need or advisability of a mass immunization program at this time."

The action of the Section on Pediatrics was approved and the Board requested that the Public Health Committee of the Medical Society be apprised of the action of the Section on Pediatrics and directed to expedite its program so that a report may be made to the Executive Board at its earliest convenience.

Annual Business Meeting: The setting of the date of the Annual Business Meeting for 1964 was considered. The question put before the Board was whether this meeting should be held on the Sunday prior to the ANNUAL SCIENTIFIC ASSEMBLY, during the ASSEMBLY, or the week prior to the ASSEMBLY. The Board voted that the selection of the date of the Annual Business Meeting be made by the Chairman of the Executive Board, the President of the Medical Society, and the Executive Director so that they may have flexibility to adjust to any unforeseen conflicts.

AMA Members' Retirement Plan: The Assistant Secretary reported to the Executive Board that the retirement program under the Keogh Act has now been completed by the AMA and has been approved by the Bureau of Internal Revenue. It was stressed by the Executive Board that if members of the Medical Society who are also members of the American Medical Association would like to take advantage of the retirement program for the year 1963, applications must be made before December 31, 1963. It was decided to send a postcard to all members of the Medical Society concerning the requirements of the new AMA Retirement Program before December 31, 1963.

Meetings

The 1964 Kober Lecture will be held on Thursday evening, April 23, in the Gorman Auditorium of the Georgetown University Hospital. The speaker, who has been selected by the Association of American Physicians, will be Dr. Frank L. Horsefall, Jr., President and Director of the Sloan-Kettering Institute for Cancer Research, New York City. All members of the D.C. Medical Society are invited to attend the lecture.

General News

Dr. Martin M. Cummings has been appointed **Director of the National Library of Medicine,** succeeding Dr. Frank B. Rogers, who retired, September 1, 1963. Dr. Cummings has been Associate Director for Research Grants of NIH since May, 1963 and Chief of the Office of International Research since March, 1961. From 1959 to 1961 he was Chairman and Professor of Microbiology at the University of Oklahoma School of Medicine. A graduate in medicine from Duke University (1944), his special interests have always been chest diseases, including particularly tuberculosis and sarcoidosis.

Commissioned in the Public Health Service in 1946, he served assignments in several different states and abroad. In 1949 he was named Director, Tuberculosis Section, and Director, Tuberculosis Research Laboratory, Veterans Administration Hospital, Atlanta, Ga., and in 1953 he was appointed Director, Research Service, VA Central Office, in Washington, D. C. While in Atlanta he was on the faculty of Emory University as Associate Professor in Bacteriology and during his assignment in Washington, special lecturer in microbiology at George Washington University School of Medicine.

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He is the author of many scientific papers, textbooks, and special publications on sarcoidosis, tuberculosis and other infectious diseases.

The Public Health Service announces publication of 2 new booklets. The first, **"Congestive Heart Failure: A Guide for the Patient,"** describes the causes, process, treatment, and management of this condition. The pamphlet includes 8 ways in which the patient with congestive heart failure can help himself to stay well and 7 danger signals of a recurrence. The guide, which was prepared by the Heart Disease Control Program of the Division of Chronic Diseases, is available through the Superintendent of Documents, Government Printing Office, Washington 25, D.C. at 10 cents a copy.

"Cancer of the Bone" is an informational pamphlet designed to give the general public a clearer understanding of primary and secondary bone malignancies. It is the fourth in a revised series of 10 dealing with cancer of different body sites. Already published are "Cancer of the Breast," "Cancer of the Skin," and "Cancer of the Uterus." Prepared by the National Cancer Institute, these pamphlets explore the nature, cause and prevention, detection, diagnosis and treatment of malignant disease. Single copies (PHS Publication No. 1070) are available without charge from the Public Health Service, Washington 25, D.C. In quantity the pamphlet is available from the Superintendent of Documents, Government Printing Office, at 5 cents per copy.

Elected to office, December 18, were the following members of the **Section on Pathology and Laboratory Medicine of the D. C. Medical Society:**

Dr. Paul B. Garcia, *Chairman*; Dr. Luis M. Lopez, *Vice Chairman*; Dr. William L. Marsh, *Secretary-Treasurer.*

The D. C. Society of Internal Medicine has elected new officers to serve from July 1964 through June 1965. They are:

Dr. Joseph J. Wallace, *President*; Dr. Thomas E. Curtin, *President-elect*; Dr. John J. Hughes, *Secretary*; and Dr. James E. Fitzgerald, *Treasurer.*

New officers have been elected by the **Prince Georges County (Maryland) Medical Society.** Now serving are:

Dr. Norman D. Comeau, Mt. Rainier, *President*; Dr. Frederick E. Musser, Cheverly, *Vice President*; Dr. William A. Holbrook, College Park, *Secretary*; and Dr. Henry R. Wolfe, Hyattsville, *Treasurer.*

These officers, with the exception of Dr. Holbrook, are Associate members of the D. C. Medical Society.

Dr. Robert H. Felix, Director of the National Institutes of Health, Public Health Service, has been **awarded the Salmon Medal** by the New York Academy of Medicine for his contributions to psychiatry. Dr. Felix, who has been Director of NIH since 1949, is only the third person to receive the Medal in 30 years.

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88TH YEAR HAHN

Dr. Robert D. Moreton, of Fort Worth, Texas, assumed the office of **President of the Southern Medical Association** on November 20, 1963, during its Annual Meeting in New Orleans, La. **Dr. R. H. Kampmeier,** of Nashville, Tenn., is the new **President-elect**; he will take office in November, 1964.

Personals

Dr. W. Dabney Jarman was elected President of the Mid-Atlantic Section of the American Urological Association at its Annual Meeting in Hot Springs, Va. in November. Dr. Jarman is Associate Clinical Professor of Urology at George Washington University and director of the education program in urology at the Washington Hospital Center.

Dr. Karl C. Corley and Dr. Arnold McNitt have joined the long role of distinguished graduates of old Central High School. They were awarded Certificates of Distinction by the Central High School Alumni Association at its 55th Annual Reunion at the Shoreham Hotel, December 26.

Dr. Corley, immediate Past President of the Medical Society of the District of Columbia, is a radiologist, associated with Groover, Christie, and Merritt, and is on the staff of Doctors Hospital. He served with distinction in both World War II and the Korean conflict as an officer in the Army Medical Corps, and held the commission of Lt. Colonel. He was a member of the Class of 1924.

Dr. McNitt, specialist in internal medicine, was a member of the Class of 1919. He is a member of the Board of Directors of Doctors Hospital, a member of its Executive Committee, and Secretary to both groups. He is Director Emeritus of the Hospital's Department of Medicine. During World War II he was in charge of civilian examiners at the Fort Myer induction station.

Dr. Ernest A. Gould, Senior Attending Surgeon at the Washington Hospital Center, has been elected President of the Center's Medical Staff. Dr. Gould is Assistant Clinical Professor of Surgery at George Washington University School of Medicine.

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At the recent Annual Meeting of the Senior Attending Physicians of Children's Hospital, **Dr. Milton M. Greenberg** was elected Chairman of the Medical Staff. **Dr. Gerald H. McAteer** was elected Vice Chairman, and **Dr. Sidney Ross** was reëlected Secretary-Treasurer.

The Medical Staff numbers 802 pediatricians, surgeons, and physicians in allied specialties. In addition to medical care, teaching, and research, the Hospital trains about 150 medical students yearly from Georgetown and George Washington Universities.

Dr. Jacob J. Weinstein was elected to the Board of Trustees of the American College of Gastroenterology at the Annual Meeting of the College in Washington, D.C., October 20–22. Dr. Robert R. Bartunek, of Cleveland, Ohio, took office as President.

Dr. Thomas McPherson Brown has been elected to the Board of Managers of Swarthmore College, Swarthmore, Pa., to serve a 4-year term. Dr. Brown is the Eugene Meyer Professor of Medicine at George Washington University.

Dr. Merrill M. Cross, of Silver Spring, Md., is now President of the Medical Staff of Holy Cross Hospital. He succeeded Dr. Peter N. Lombard, its first President. Dr. Cross is an Associate member of the D. C. Medical Society.

Dr. Sol Katz, Chief of Medical Service at Mt. Alto Veterans Administration Hospital, was chosen to deliver the Eighteenth Annual R. R. Huggins Memorial Lecture at the University of Pittsburgh School of Medicine, November 21. Phi Delta Epsilon sponsors the lecture and selects a speaker each year from outstanding members of the medical profession. Dr. Katz spoke on "Extrapulmonary Clues in the Diagnosis of Pulmonary Diseases."

Dr. Elaine W. Murphy has been elected Medical Director of Government Employees Life Insurance Company. She also serves as physician in the Personnel Department of the Government Employees Companies. She is the first woman officer in this insurance company.

Dr. Herbert H. Schoenfeld retired from the Field Staff of the Council on Medical Education of the American Medical Association, December 31. He served almost 4 years in a survey of intern and resident training programs in teaching hospitals for their accreditation ratings.

Dr. John W. McTigue was elected President of the Prevention of Blindness Society at its 27th Annual Meeting, December 5.

Dr. Thomas M. Wilson was elected President of the Montgomery County (Maryland) Council, December 31, to serve for 1 year. He is an Affiliate member of the D. C. Medical Society.

Dr. Assad S. Khoury has been elected to associate membership in the American Rhinologic Society. Dr. Khoury is an Associate member of the D. C. Medical Society.

Obituaries

John Chester Brady, M.D.

(1892–1964)

Dr. J. Chester Brady, a Life member of the Medical Society of the District of Columbia, died, January 1, 1964, at Sibley Memorial Hospital. A native of the District of Columbia, he had practiced at 35 New York Avenue, N.W., since 1915.

Dr. Brady was born to Walter S. and Margaret Brady on September 27, 1892. He attended Gonzaga High School, and graduated in medicine from Georgetown University in 1915. After interning the following year at Providence Hospital, he began his practice in the family home on New York Avenue. He later moved his residence to 4616 Argyle Terrace, N.W.

During World War I he served with the 27th Engineers in France, with the rank of Captain, in the Army Medical Corps.

He was on the courtesy staffs of Sibley Memorial, Providence, Children's, and Casualty Hospitals, and the Washington Hospital Center. He was surgeon for the Chesapeake and Ohio Railroad.

Dr. Brady was elected an Active member of the Medical Society of the District of Columbia in 1920 and became a Life member in 1960. He was a member of the American Medical Association, the Georgetown Clinical Society, and the Osler Society. He also belonged to the Potomac Council of the Knights of Columbus and the Sergeant Jasper Post of the American Legion.

Surviving him are his wife, Mrs. Mabel Sheetz Brady, and 2 sons, Charles W. Brady, of the home address, and John C. Brady, Jr., Silver Spring, Md. He also leaves 2 daughters, Mrs. Lucille B. Haile, of Chevy Chase, Md., and Mrs. Margaret B. McSweeney, of New Orleans, La.

Joseph Ralph Jordan, B.S., M.D.

(1902–1964)

Dr. Joseph R. Jordan, a general practitioner in the Washington area for 26 years, died, January 1, 1964, after a long illness.

Dr. Jordan was a native Washingtonian, born January 16, 1902, to Edward L. and Agnes Jordan. He attended the public schools of Washington and received both his B.S. and M.D. degrees from Georgetown University, the former in 1928 and the latter in 1929. He interned at Emergency and Providence Hospitals.

Dr. Jordan began his practice in the District of Columbia in 1930. He served with the U.S. Veterans Bureau and was assigned to Mt. Alto Veterans Administration Hospital from 1930 to 1937. From 1937 until he retired in 1956 he was medical consultant to the U.S. Government Railroad Retirement Board.

Dr. Jordan was an Active member of the D.C. Medical Society from 1939 until 1957.

He leaves his wife, Mrs. Marcella Lamb Jordan, of the home address, 7201 Chatham Street, North Springfield, Va., and 4 daughters: Miss Kathleen Jordan and Mrs. Frances Lyons, of Springfield, Va., Sister Marcella Julie of the Sisters of Notre Dame de Namur, and Sister Joseph Miriam of the Order of St. Francis. He is also survived by 3 sisters, Mrs. Elsie Wills, of Bethesda, Md.; Mrs. Hazel Considine and Mrs. May Callahan, both of Washington; and Miss Phalam Jordan, of Silver Spring, Md.

Bernard Rudolph George Nebel, Ph.D., M.D.

(1901–1963)

Dr. Bernard R. Nebel, of Downers Grove, Illinois, died, June 1, 1963. While a resident of Washington he served with the U.S. Atomic Energy Commission.

Dr. Nebel was born, August 10, 1901, in Durban, South Africa, to Rudolf and Marie Rolfes Nebel. He received his early schooling in Freiburg i.B., Germany. From Halle University, Germany, he earned the degree, Doctor of Philosophy, in 1925.

A few years later Dr. Nebel came to the United States, where he engaged in scientific research at the New York Agricultural Experiment Station (1929–1942). Turning to medicine, he enrolled at the University of Rochester, receiving his degree in 1945. He interned at Strong Memorial Hospital the following year.

From 1946 to 1952 he remained a staff member of Strong Memorial Hospital and taught pediatrics at the University of Rochester. He was also on the medical staff of Geneva (New York) General Hospital from 1946 to 1953.

In 1953 Dr. Nebel became affiliated with the Atomic Energy Commission in Washington, D.C., serving as industrial physician until 1956, when he moved to Downers Grove, Ill. From 1956 until his death he was engaged in research with the Argonne National Laboratory of the University of Chicago.

He was elected to Associate membership in the Medical Society of the District of Columbia in 1953 and continued his membership after he moved to Illinois. He was a member of the American Medical Association, the New York State Medical Society, and the Geneva (New York) Academy of Science. He belonged to many civic and recreational groups.

Surviving him is his wife, Mrs. Mabel R. Nebel, who lives at 1128 Curliss Street, Downers Grove, Illinois.

Psychiatry and General Hospital—Lebensohn

(*Continued from page 52*)

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Aspiration Pneumonitis-Keshishian and MacCordy

(*Continued from page 60*)

administration of steroids and bronchoscopy. In only 1 of these was frank cyanosis seen and that was in the patient who could not receive steroids.

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Delegates' Report on AMA Clinical Meeting

(*Continued from page 76*)

at Portland he found Dr. Oscar B. Hunter, Jr., who was Alternate Delegate to the AMA's Section on Pathology and Physiology and who subsequently was seated as alternate for Dr. Camalier.

Your delegates there heard of the illness of Dr. Joseph W. Peabody, who had been hospitalized in Portland, and offered him assistance, but he had everything under control and has since returned home.

Respectfully submitted,
Raymond T. Holden, M.D., *Delegate*
Oscar B. Hunter, Jr., M.D.,
Alternate Delegate Pro Tem

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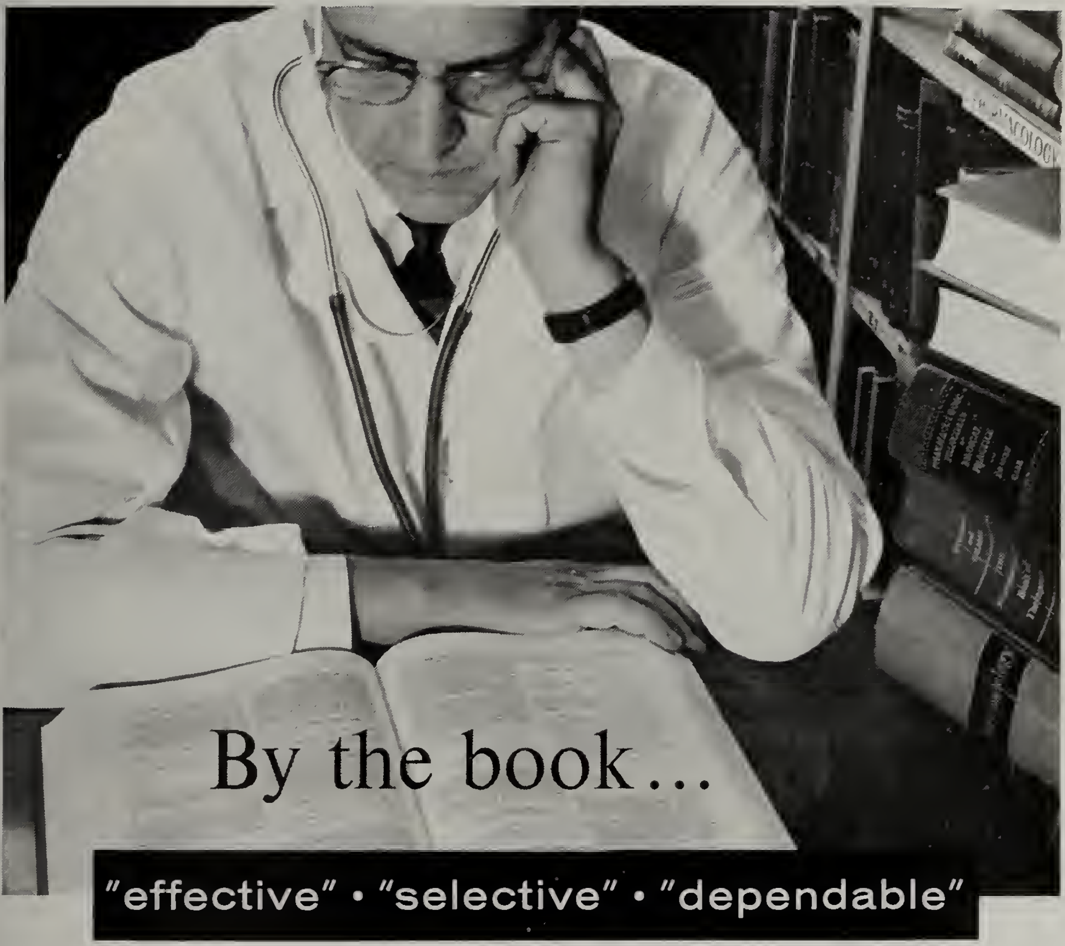

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Some of these associated metabolic reactions made it risky or otherwise undesirable to treat with steroids large numbers of patients in various categories who would otherwise have benefited from such management. These "untreatables" were overweight, had cardiac disease, hypertension, or pulmonary fibrosis associated with congestive heart failure. Also in this category were those patients whose emotional symptoms were aggravated by earlier steroids.

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Contraindications. While the only absolute contraindications are tuberculosis and herpes simplex, there are some relative contraindications (peptic ulcer, glomerulonephritis, myasthenia gravis, osteoporosis, fresh intestinal anastomoses, diverticulitis, thrombophlebitis, psychic disturbance, pregnancy, infection) to weigh against expected benefits.

While no steroid can *cure* a susceptible disorder, many patients who would otherwise be confined in a state of invalidism have, on ARISTOCORT® Triamcinolone, been able to pursue active, useful lives.

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BOOK REVIEWS

Review of Medical Physiology. William F. Ganong, M.D. Price (paper), $6.50. Pp. 577, illustrated. Los Altos, Calif.: Lange, 1963.

In all fields of science knowledge is expanding so rapidly that even the professional devoted to a single discipline is hard pressed to keep abreast of developments in a restricted area. Thus when a review of a given field appears, it generates immediate interest, especially if it is presented in a well-illustrated, softcover edition at a reasonable price. Unfortunately, these assets of the volume in question are overshadowed by specific deficiencies which reduce its utility as a refresher course for practitioners, as an examination review for house officers, or as a study aid for medical students.

The book is not presented from a contemporary viewpoint. It does not distinguish recent advances from prior knowledge. Many of the figures and references are from modern work, but too often the author has not assimilated these sources with the result that his treatment of various subjects remains old-fashioned.

The book is not concise enough to be an ideal review. Not only are trivial subjects considered but important and difficult aspects are not accorded special attention. The clinical correlations will not enlighten those who have had more than a minimum of clinical experience.

The book does not describe the research which developed our current concept of physiology. Since the volume is primarily directed at medical students, this is its most serious indictment. Modern teaching of physiology is concerned with the attitudes and mental processes that created physiologic understanding. They are the same as those which characterize the thoughtful and dedicated practice of medicine. To separate the manner in which physiologic knowledge is acquired from that knowledge reduces the subject matter to a series of dry facts without the context that provides their proper evaluation. A study aid which encouraged the student to build a dynamic body of physiologic concepts from which new information could be derived as needed would have been welcomed. One that reduces the subject to a catalogue of facts for memorization should be avoided, especially if the viewpoint is dated, if much of the material is peripheral to the central core of the topic, and if some of the information contained is in error.

Charles S. Tidball, Ph.D., M.D.

Review of Physiological Chemistry, 9th ed. Harold A. Harper, Ph.D. Price (paper), $6.00. Pp. 437, illustrated. Los Altos, Calif.: Lange, 1963.

This book contains 2 major revisions and additions, as compared to the eighth edition. The ninth edition contains an appendix with a review of the fundamentals of chemistry, which are essential for an understanding of the physical basis of biochemical phenomena. Such topics as equilibrium, pH, buffers, osmotic pressure, Donnan equilibrium, and others are briefly discussed.

The chapter on enzymes has been completely revised. Factors affecting enzyme kinetics are stressed. The Michaelis-Menten equation is discussed as well as the Lineweaver-Burk plots for competitive and noncompetitive inhibition. Important concepts of enzyme induction and repression are also mentioned.

More recent findings in amino acid metabolism and nucleic acid coding for the synthesis of proteins have been incorporated into the chapter on Protein and Amino Acid Metabolism.

While it is felt that a major revision of the chapter, The Chemistry of the Tissues, is in order, Dr. Harper's book does contain an excellent outline of the pathways of carbohydrate, lipid, and protein metabolism.

Arthur S. Brecher

Diseases of the Chest, 2nd ed. H. Corwin Hinshaw, M.D., Ph.D., D.Sc., and L. Henry Garland M.B., B.Ch., M.D. Price, $20.00. Pp. 798, with 743 illustrations on 308 figures. Philadelphia: Saunders, 1963.

This second edition of Hinshaw and Garland's "Diseases of the Chest" is much more than a mere revision of the 1956 edition which was so popular. In the 7 years intervening tremendous changes in the medical management of tuberculosis and fungal diseases have occurred, and some specific therapeutic advances have outmoded concepts presented in the earlier edition. Generally, the chapters and subheadings follow the earlier format, but large sections have been completely rewritten, with greater emphasis on preventive aspcets of emphysema, chronic bronchitis, collagen diseases, and other current problems. Its text is presented clearly, tersely, and simply, covering the entire field of medical diseases of the chest, excluding cardiology.

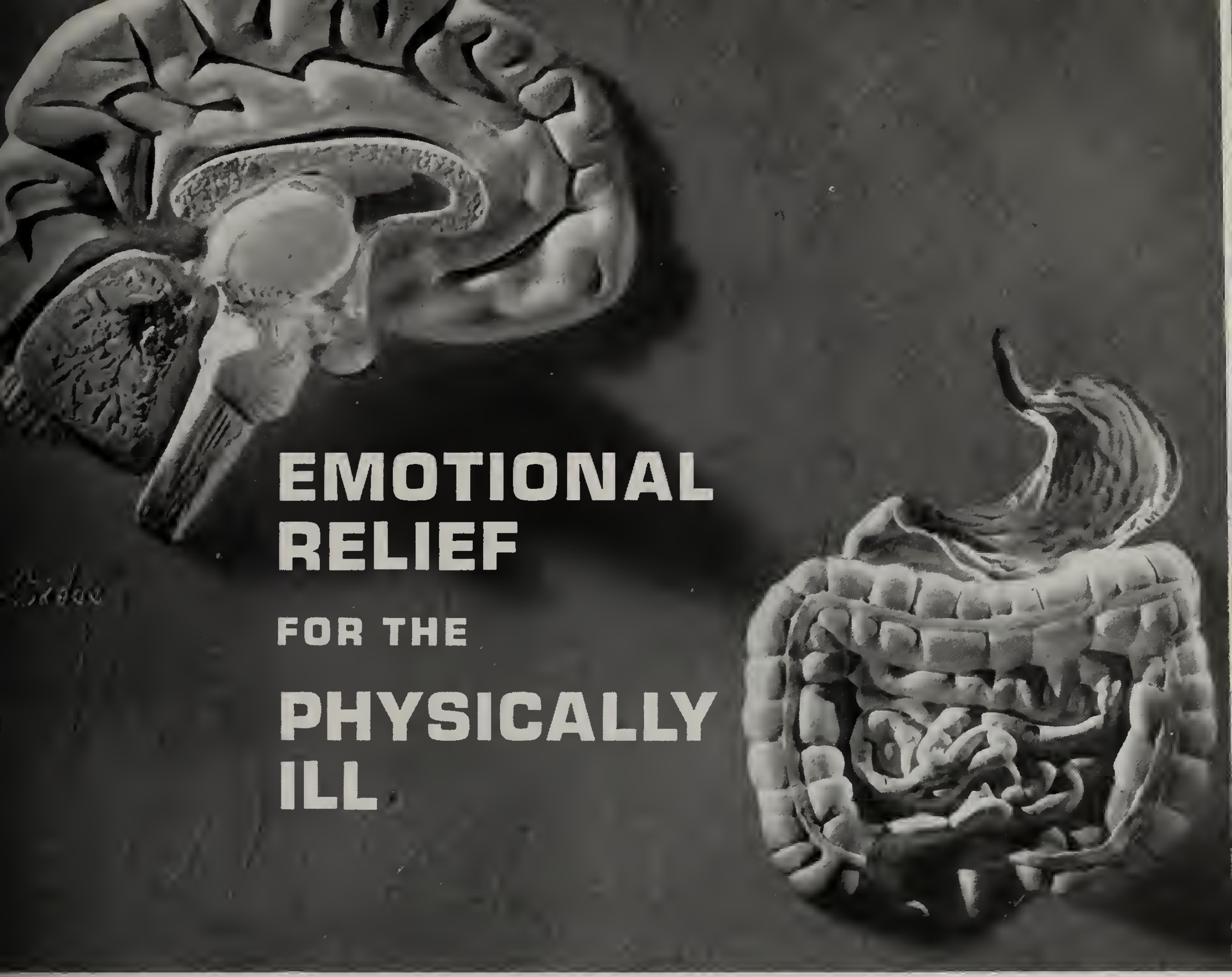
This volume provides an up-to-date textbook for students and practitioners, emphasizing diagnosis and treatment for the nonspecialist. It is well planned, illustrated with many roentgenograms and tables, and has an adequate but not unwieldy bibliography.

Roy G. Klepser, M.D.

Experimental Pharmacodynamics, 3rd ed. T. Koppanyi and A. G. Karczmar. Price (paper), $6.50. Pp. 246, illustrated. Minneapolis: Burgess, 1963.

More than a laboratory manual, this book represents a short course in pharmacology. Each of the 3 dozen subsections is introduced by a discussion of the basic chemistry and pharmacology of a class of drugs. This discussion may serve as a first introduction to pharmacology or, more properly, as a review, or supplement to a standard text. The discussion is followed by several (as many as 13) experiments or demonstrations illustrating the principal effects of each class of drugs. Over 100 experiments are outlined, ranging from the classical (e.g., the stages of ether anesthesia) to the more

(Continued on page 32)



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(*Continued from page 30*)

modern (e.g., the central effects of reserpine and monoamine oxidase inhibitors), and from simple (e.g., the emetic action of apomorphine in the dog) to the more complex and sophisticated (e.g., localization of the site of action of a ganglionic blocking agent, using the nictitating membrane of the cat and pre- and postganglionic nerve stimulation). Although few if any departments would wish to undertake all the experiments outlined, all could find many worthwhile suggestions or additions for their own courses for medical, graduate, and pharmacy students.

Each subsection concludes with "Clinical Bearings," which attempts to correlate theory, as illustrated in the experiments, with clinical practice, and a bibliography which includes references to some of the classical and contemporary literature. An appendix discussing prescription writing is also included.

Conspicuous by its absence in a manual of this size and scope is the lack of much discussion or use of biostatistics.

VICTOR H. COHN, PH.D.

Pediatric Cardiology, 2nd ed. ALEXANDER S. NADAS, M.D., F.A.A.P. Price, $16.00. Pp. 828, with 527 illustrations. Philadelphia: Saunders, 1963.

This revised edition of a very complete tome on the diagnosis and management of pediatric cardiac problems is a must for the specialist.

The various subjects are broken down into separate chapters, each a monograph, and together a treatise. Chapter 6, dealing with Cardiac Catheterization, is a thing of beauty in that it clarifies points that one may have wondered over but not investigated further.

Chapter 15, describing left to right shunts, and Chapter 17, on Transpositions, are also outstanding. In fact, there is such a wealth of information presented, one has to reread an occasional paragraph to digest the full import of the statements.

The flow diagrams of various anomalies are clear, the drawings, charts and illustrations of good quality, and the bibliography is current.

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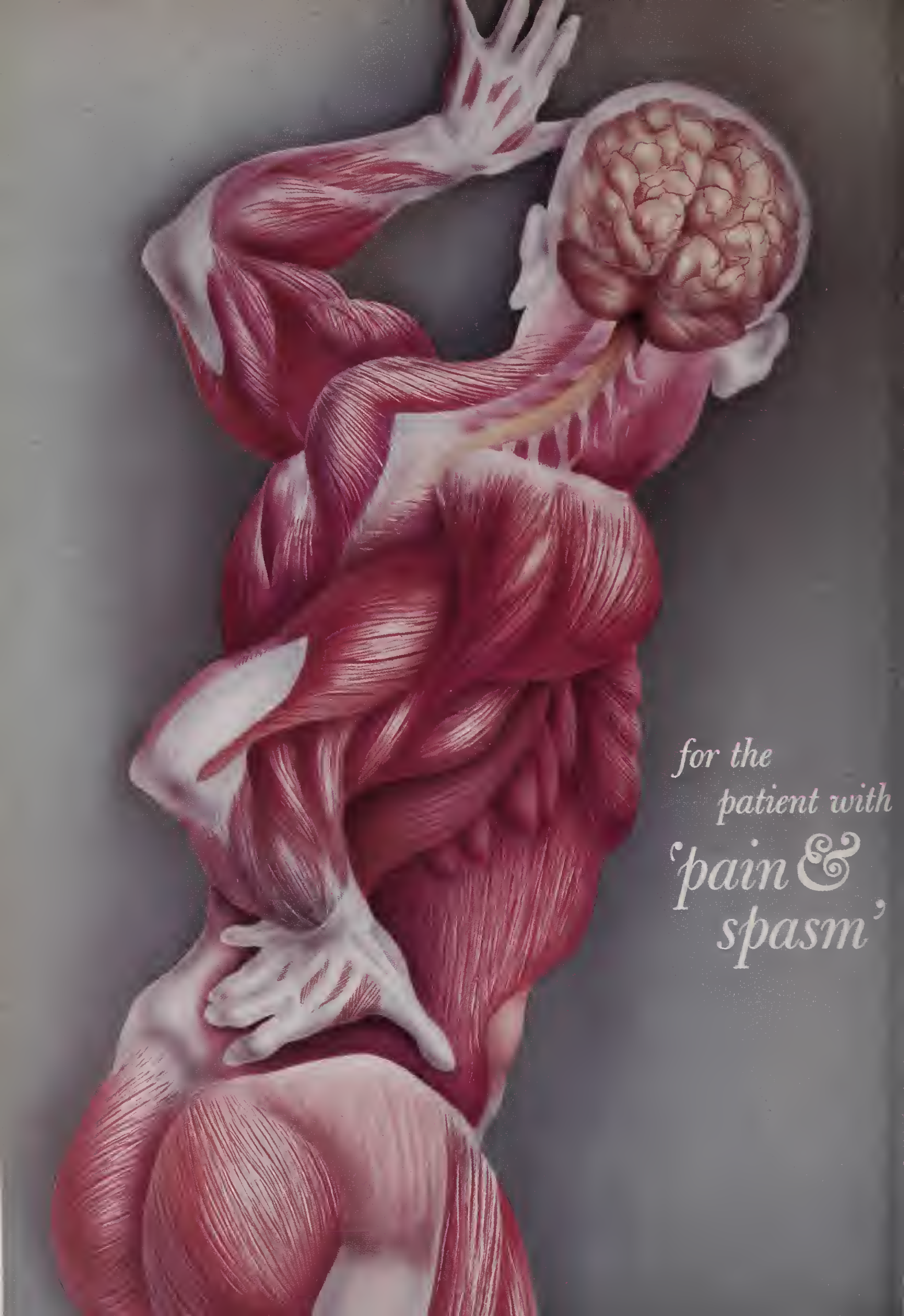

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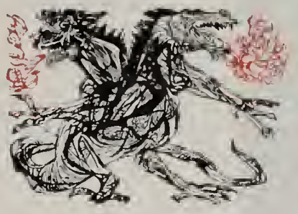

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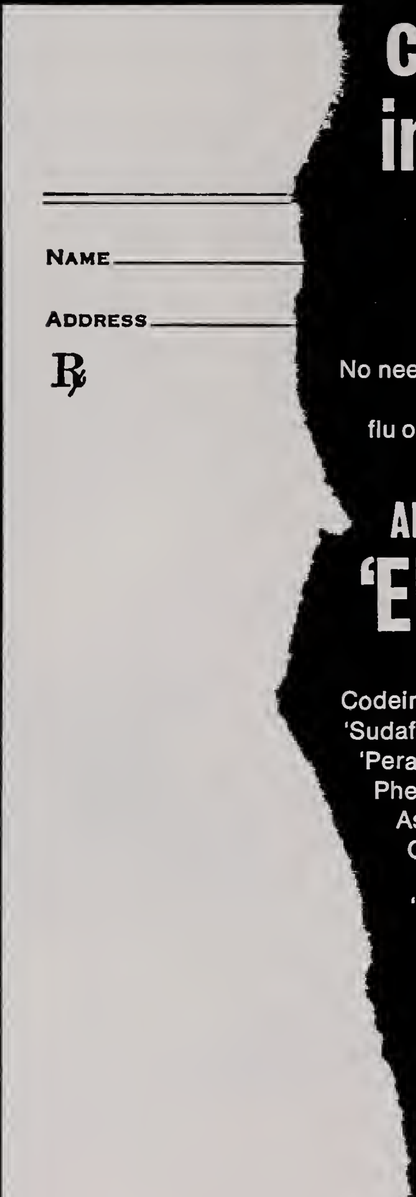

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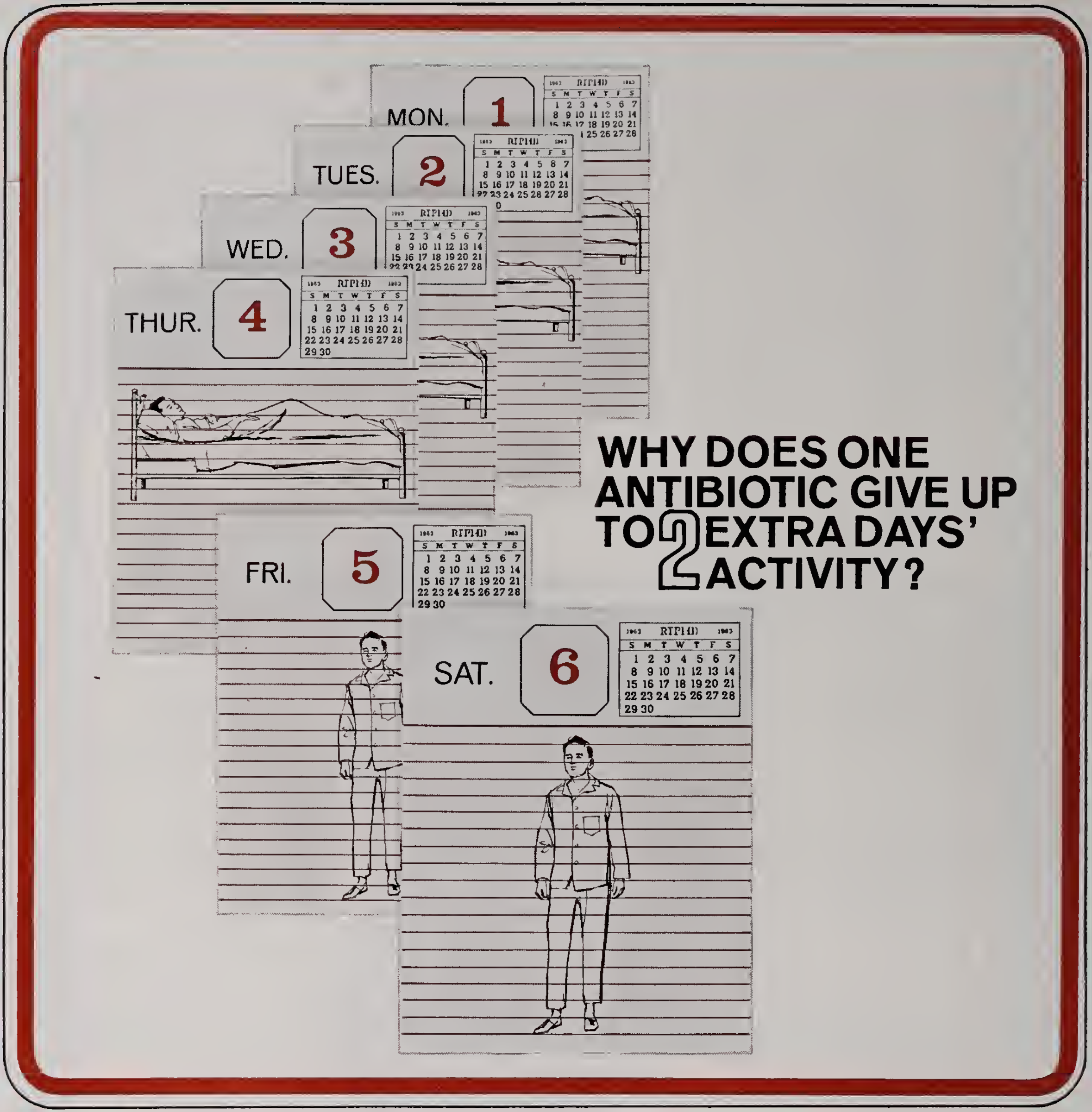
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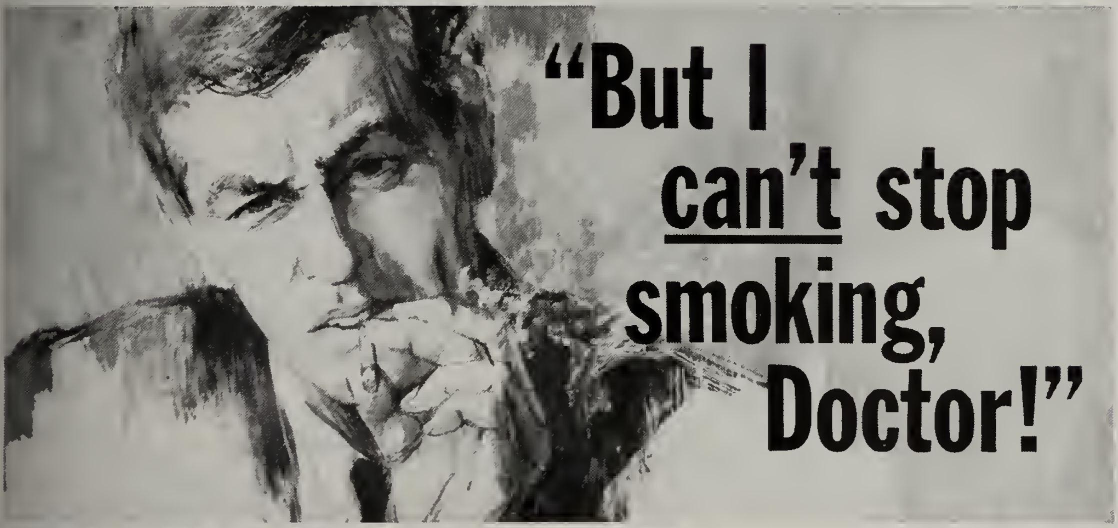

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April 1–3: American Surgical Association. The Homestead, Hot Springs, Va. Address: Dr. W. A. Altemeier, *Secretary*, Cincinnati General Hospital, Cincinnati 29, Ohio.

April 3–5: American Association of Pathologists and Bacteriologists. Drake Hotel, Chicago. Address: Dr. John R. Carter, *Secretary-Treasurer*, University of Kansas Medical Center, Kansas City 3, Mo.

April 3–5: American Society of Internal Medicine. Atlantic City, N. J. Address: Mr. Albert V. Whitehall, *Executive Director*, 3410 Geary Blvd., San Francisco 18, Calif.

April 6–10: American College of Physicians. Chalfonte-Haddon Hall, Atlantic City, N. J. Address: Dr. Edward C. Rosenow, Jr., *Executive Director*, 4200 Pine Street, Philadelphia 4, Pa.

April 11–16: American Academy of General Practice. Convention Hall, Atlantic City, N. J. Address: Mr. Mac F. Cahal, *Executive Director*, Volker Blvd. at Brookside, Kansas City 12, Mo.

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May 25–27: American Gynecological Society. The Homestead, Hot Springs, Va. Address: Dr. C. J. Lund, *Secretary*, 260 Crittenden Blvd., Rochester 20, N. Y.

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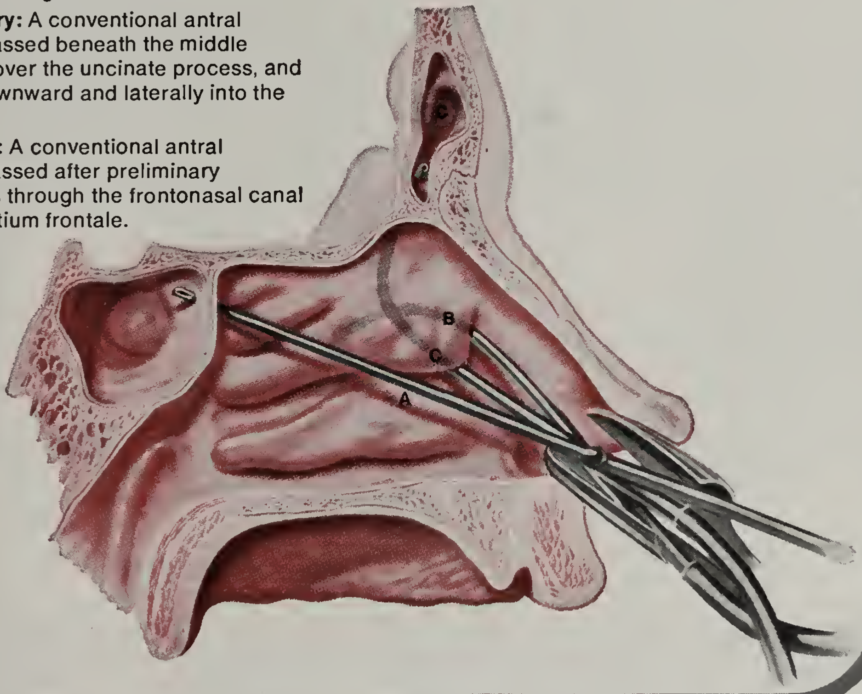

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*Reed, G. F.: Sinusitis, New England J. Med. 267:402, Aug. 23, 1962.

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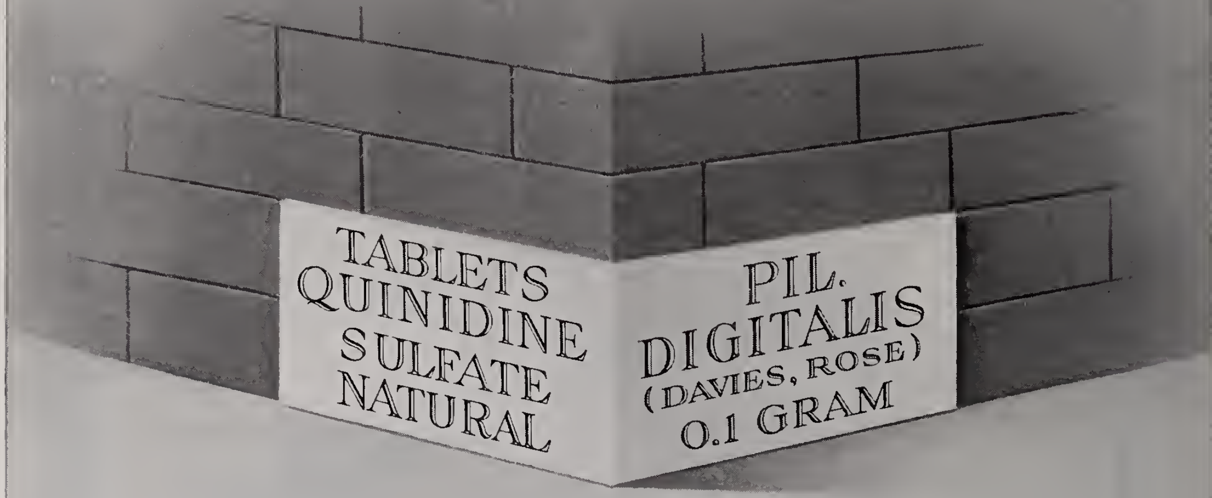

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(*Continued on page 49*)

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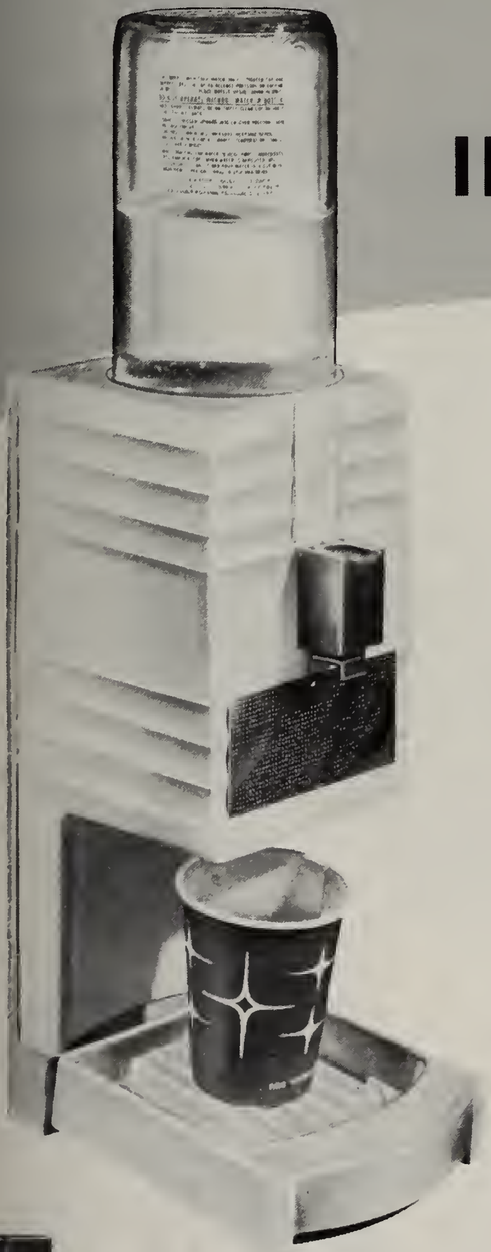

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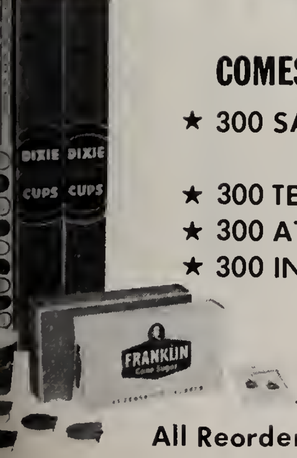

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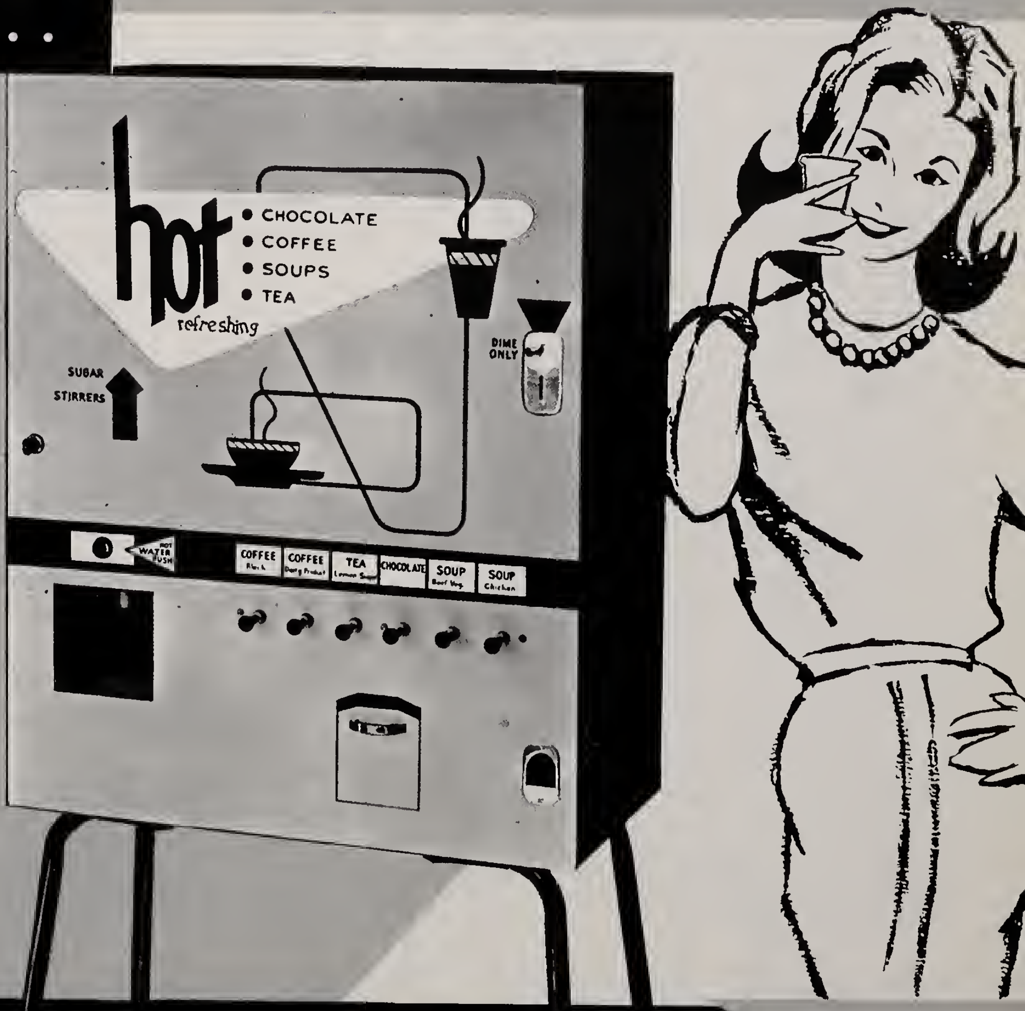

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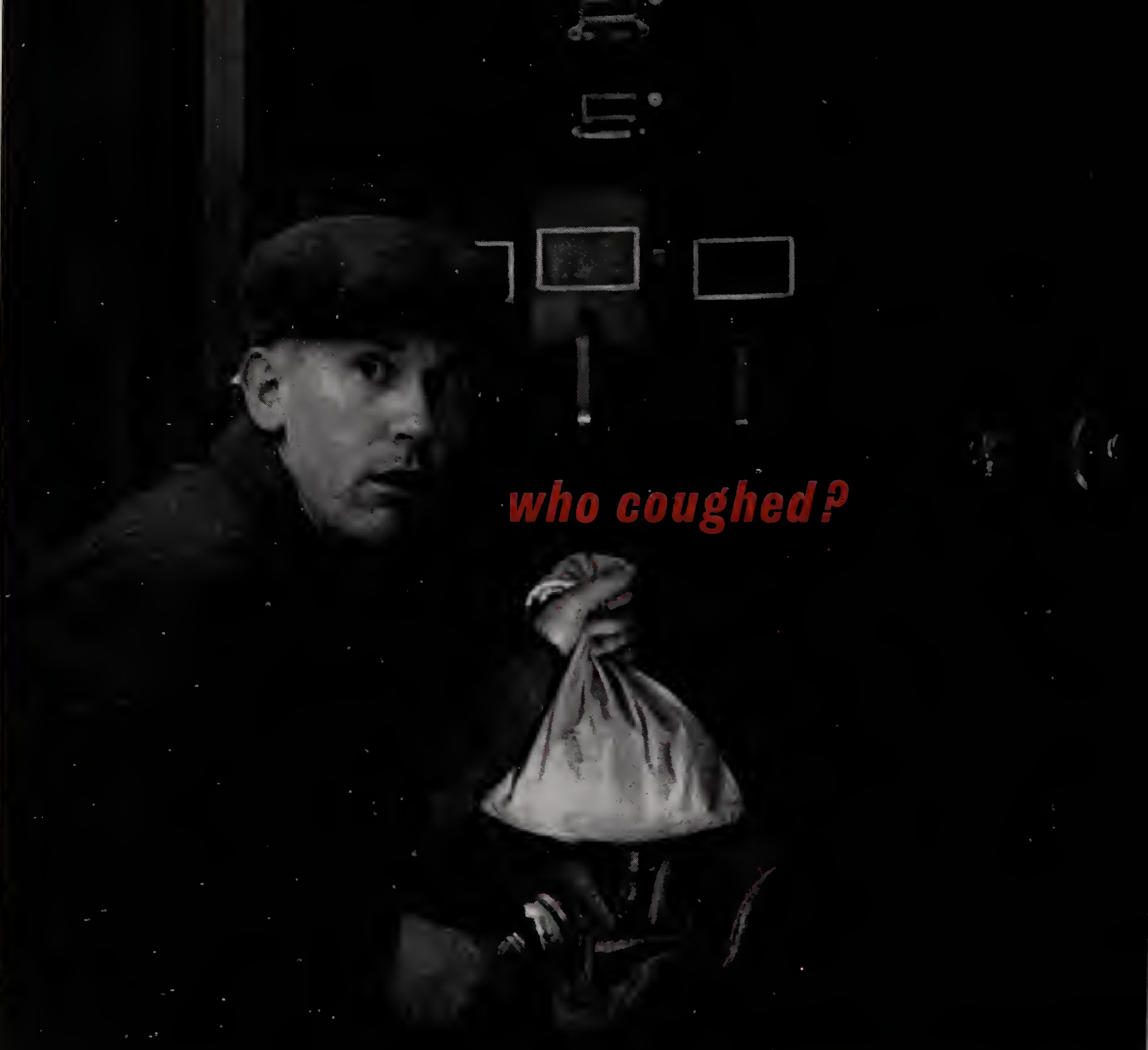
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Interpretation of Electrocardiogram
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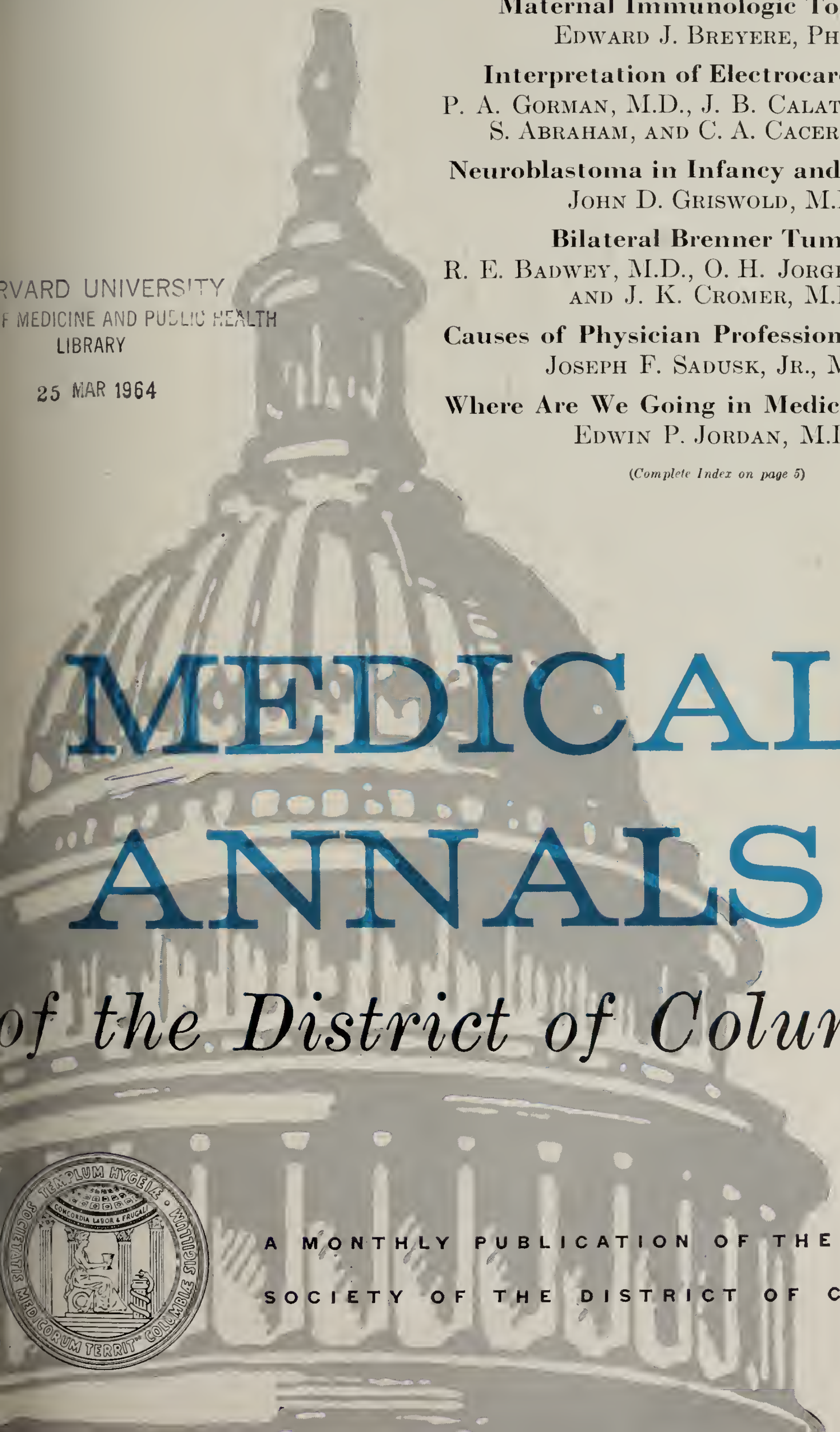

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*Roseman, E.: *Neurology* **11**:912, 1961. 33664

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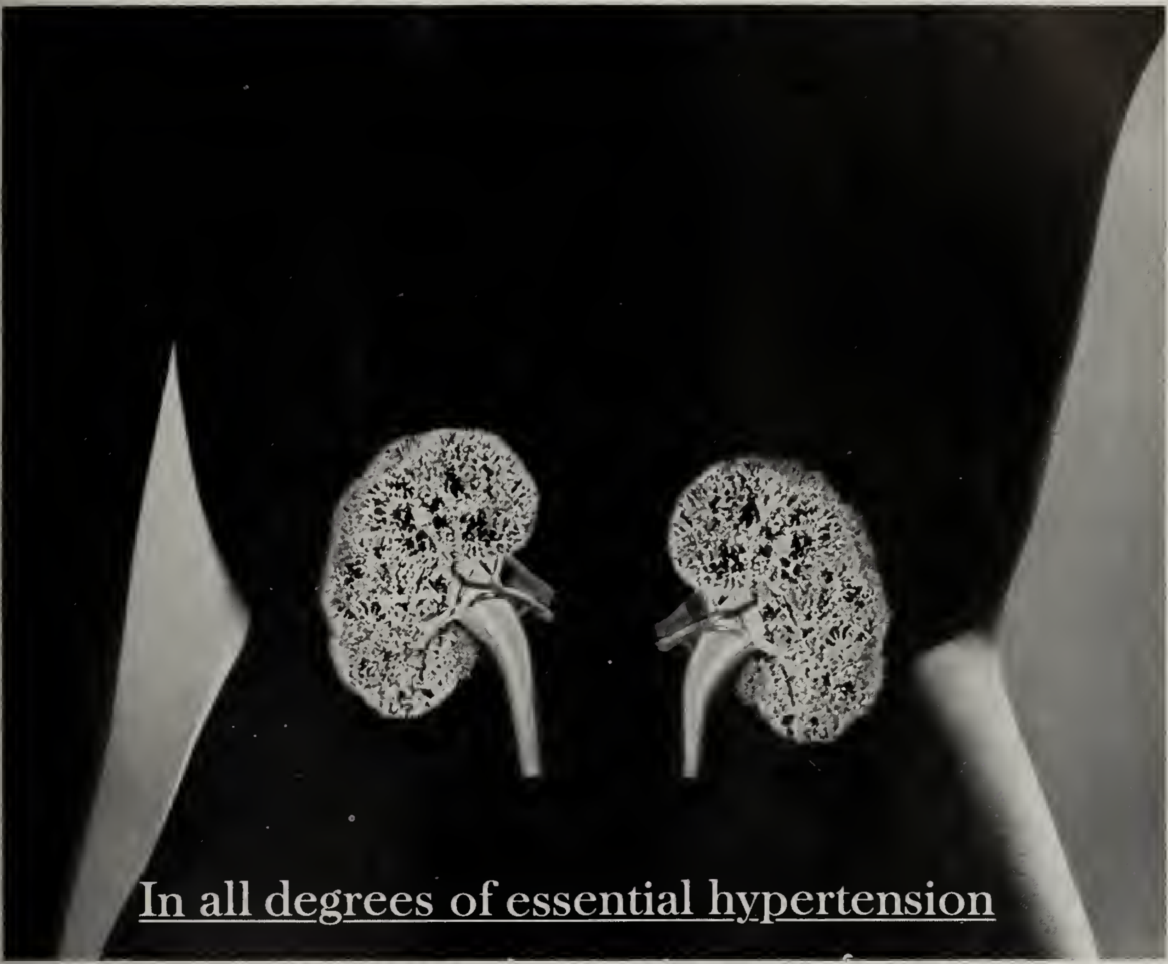
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References: (1) Moyer, J. H., and Heider, C.: Am. J. Cardiol. *9*:920 (June) 1962. (2) Brest, A. N., and Moyer, J. H.: Pennsylvania M. J. *63*:545 (Apr.) 1960. (3) Berry, R. L., and Bray, H. P.: J. Am. Geriatrics Soc. *10*:516 (June) 1962. (4) Hutchison, J. C.: Current Therap. Res. *4*:610 (Dec.) 1962. (5) Feldman, L. H.: North Carolina M. J.: *23*:248 (June) 1962.

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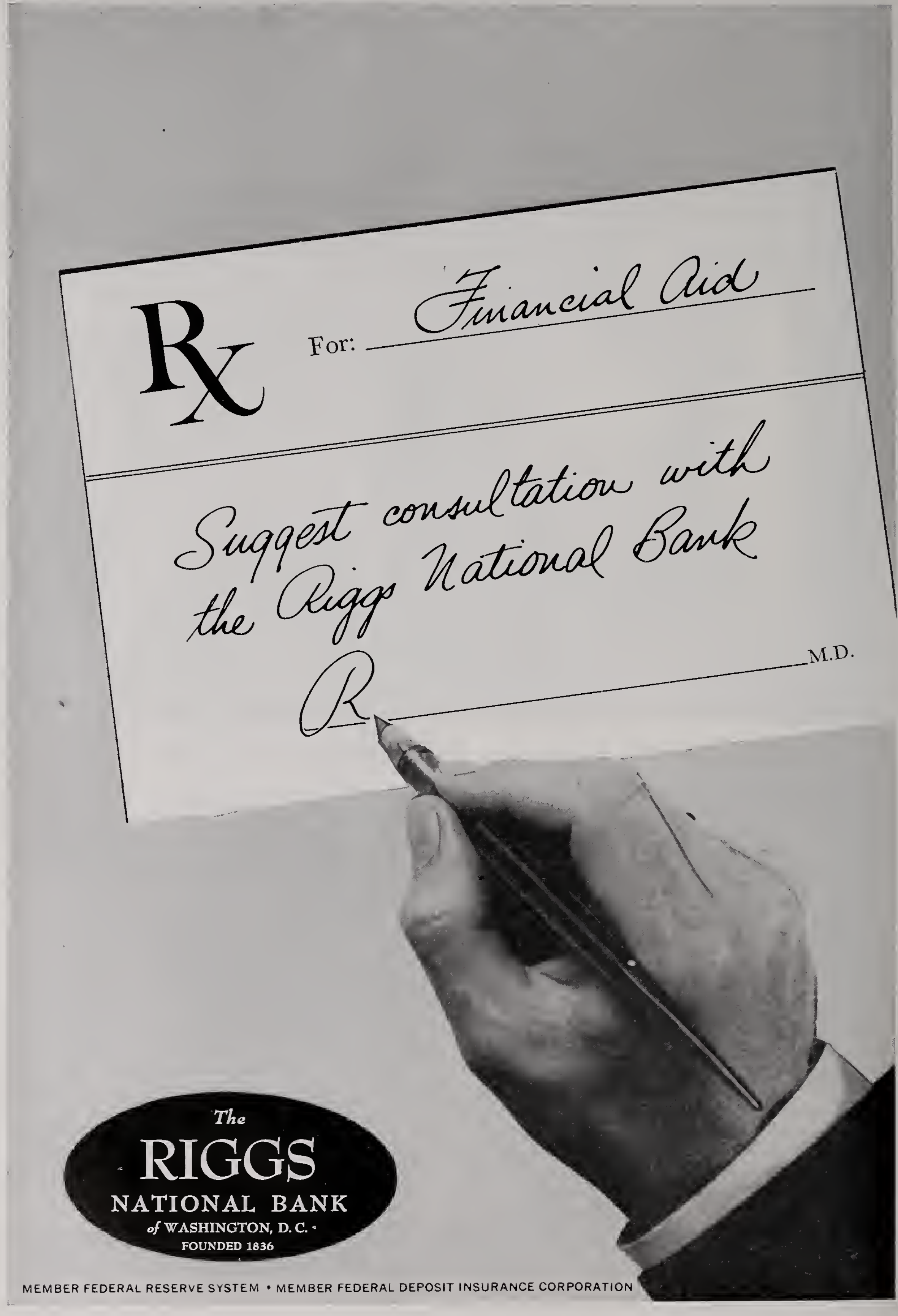

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Second-class postage paid at Baltimore, Md.
Published monthly at
Mount Royal and Guilford Avenues,
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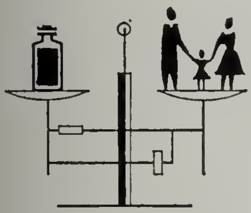

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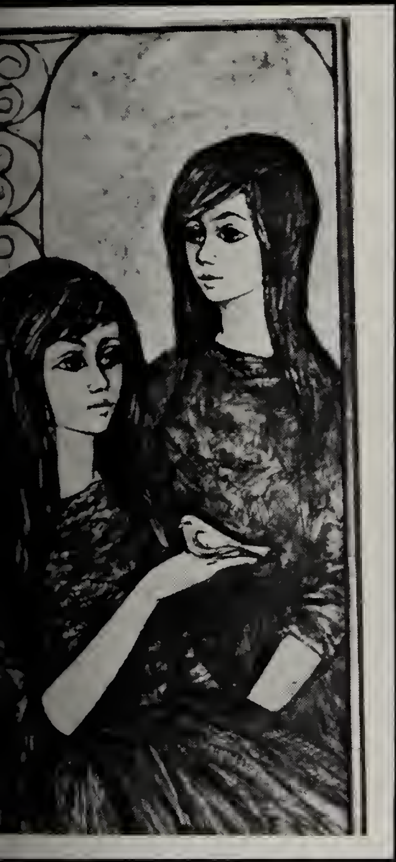

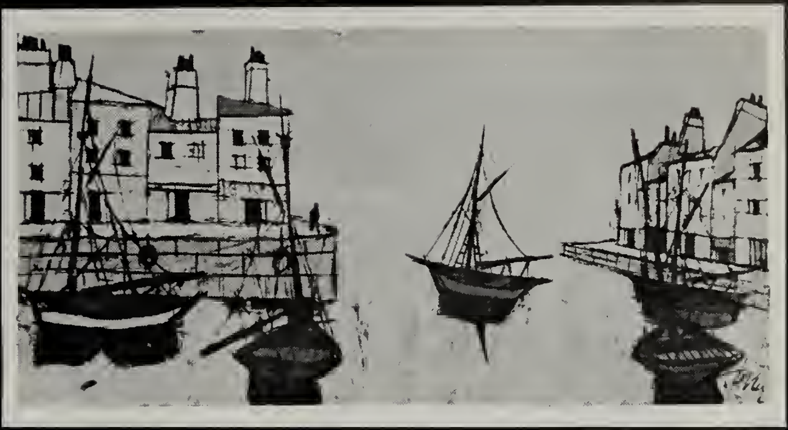

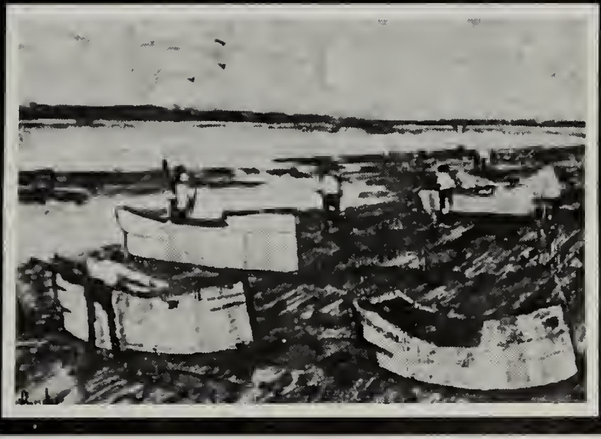

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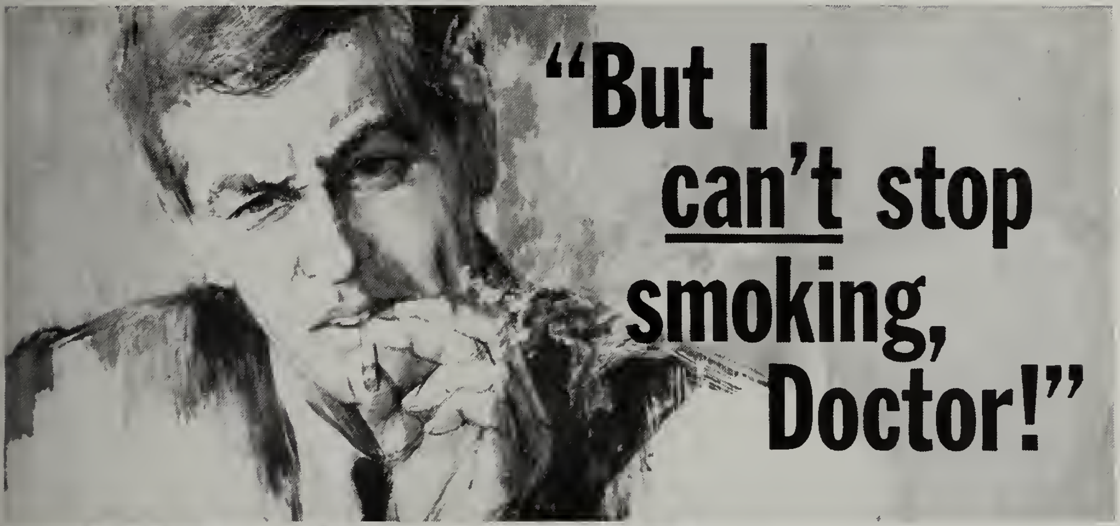

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BOOK REVIEWS

Medical Care and Health Insurance. JOSEPH F. FOLLMANN, JR. Price, $10.60. Pp. 491. Homewood, Ill.: Richard D. Irwin, Inc., 1963.

Mr. Follmann tells us, "It is hoped that this book will assist in understanding how the costs of health and medical care services might best be met." While the author has previously published much of the material in monographs or insurance journals, most of the material has appeared in forms not regularly available to physicians.

This volume on private health insurance in the last decade is a useful study in social progress in the United States. As with any dynamic set of institutions, health insurance has grown so that it is now an accepted part of the social fabric of the Nation. Much of the detail of the different aspects of health insurance growth has not been brought together in any reasonable form for physicians before this work.

The author is the Director of Information and Research of the Health Insurance Association of America, a nonprofit voluntary association of 285 health insurance companies (not Blue Cross or Blue Shield Plans).

The heart of the study concerns itself with the many different patterns of health insurance being provided in this country in addition to health insurance for hospital stay and normal physician's services. Data are presented on the current coverage of, prospects for and problems of health insurance covering the medical care costs of the aged; rural population; migratory farm labor, impaired risks, temporarily unemployed; low income families; and the mentally ill. He draws together the current proposals and programs for health insurance coverage for drugs, dental care, skilled nursing home care, home care programs and vision care.

For the physician interested in the expanding vision of private health insurance, these chapters should be of interest and value. What may be striking to the reader is the lack of a good deal of regional and/or case research on these newer areas of health insurance. While the author has brought together what research has been done, the need for more exacting case studies on these areas of health insurance seems needed.

There is a definite point of view in this work. Follmann vigorously supports the current system of non-Government health insurers as opposed to an omnipotent Government system for the population. In addition, a good deal of these data are based on the studies of his member companies. His position in regard to Blue Cross and Blue Shield is that of a cautious critic.

Although these data have been treated in part or in whole elsewhere, the author has made a real contribution. First, attention has been focused on the actual experience of insurers in expanding the concept of insuring more sections of the medical care bill of the public. In the second place, he has used his intimate knowledge of the field to draw together studies that may not always be readily available to the research worker without his broad contacts. Third, he presents his data and views on these fairly technical matters in a readable, understandable manner. One does not become submerged in technical jargon or pedantic explanations of the finer points of health insurance. Perhaps most physicians will not purchase the book due to the price, but they should know it is available when they are looking for needed background material for their own local problems and/or speeches.

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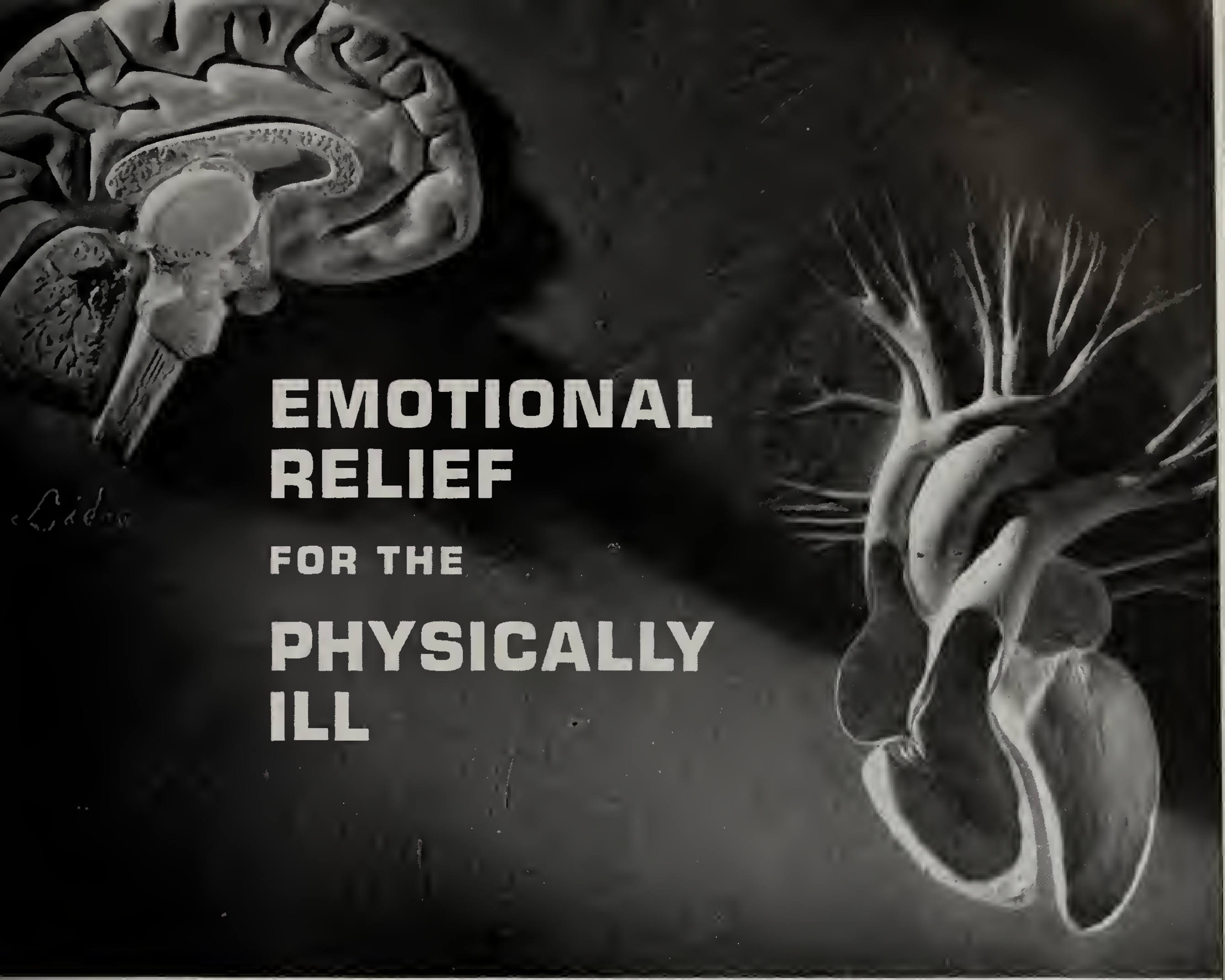
Physical Diagnosis: The History and Examination of the Patient, 2nd ed. JOHN A. PRIOR, M.D., AND JACK S. SILBERSTEIN, M.D. Price, $8.50. Pp. 455, with 277 illustrations. St. Louis: Mosby, 1963.

This is an excellent text on physical diagnosis. The descriptions of methods and findings are clear, to the point, and easy to follow. The line drawings are original and very illustrative. The use of proper names in reference to specific signs or findings is carefully avoided and the attempt is made to convey a clear understanding of the mechanism of the finding so that the student can actually interpret findings not specifically described in the book.

The organization of the book is good, and a chapter on pediatric diagnostic methods is included at the end and is quite valuable. There is no reference to the history of physical diagnosis and this, I believe, is a point in favor of the text. Such information can be best supplied by the instructor and will then serve to cement the knowledge gained by the student through the application of the techniques discussed.

This text can be recommended without any reservation as an ideal text for classes in physical diagnosis. It also serves as an excellent refresher to any physician who has been in practice.

MICHEL M. HEALY, M.D.



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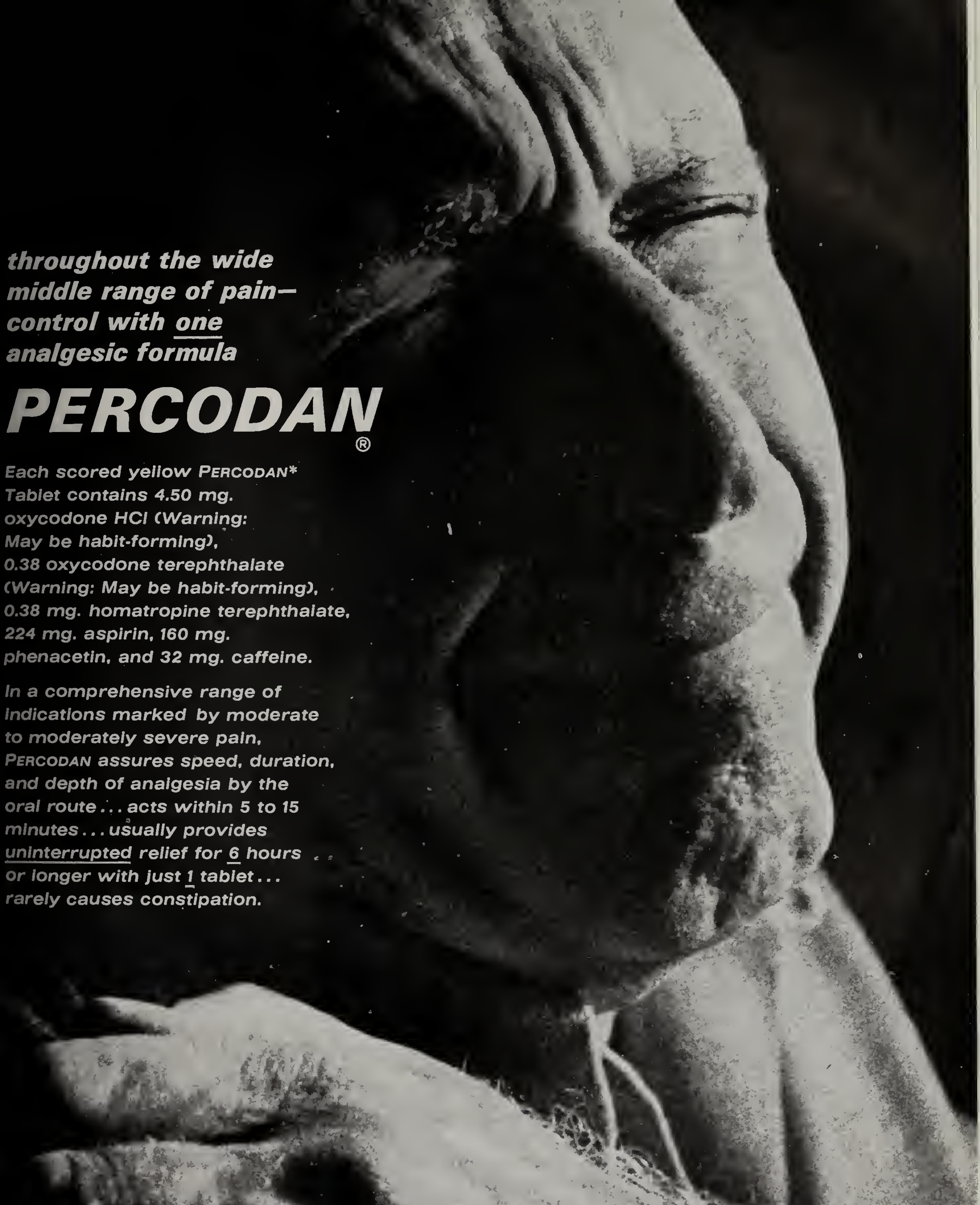

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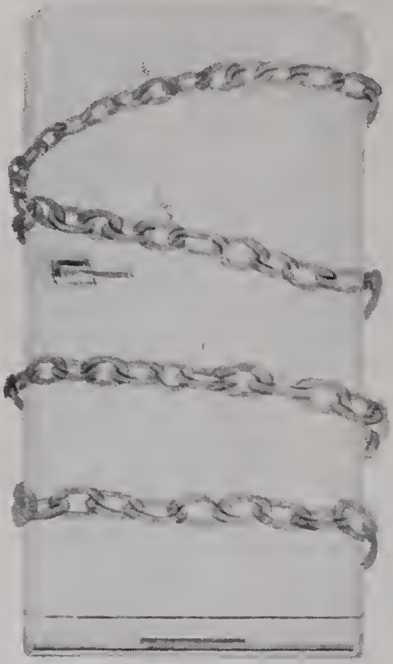

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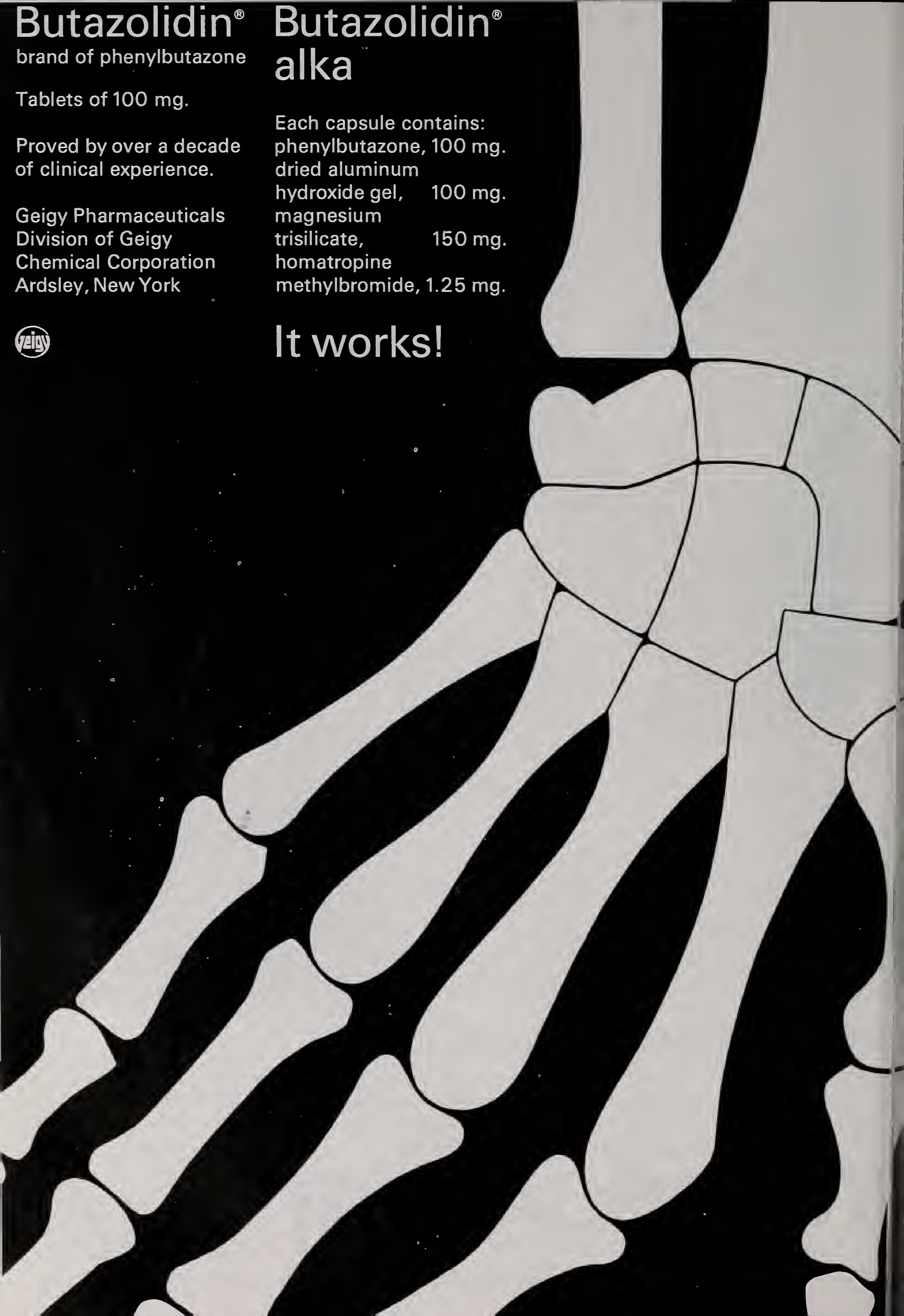

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March 1964

VOLUME XXXIII • NUMBER 3

Maternal Immunologic Tolerance[*][†]

EDWARD J. BREYERE, Ph.D.

Director, Research Laboratory, Sibley Memorial Hospital, Washington

A FETUS may be considered as a naturally occurring homograft. In general, the well-being of a graft depends upon the concordance of a large number of genetically controlled factors or "transplantation antigens." Grafts containing antigens foreign to their hosts are almost always ultimately destroyed by an immune response which has been termed the "homograft rejection phenomenon." In randomly breeding populations, such as occur in nature, maternal and fetal genetic complements differ to a considerable degree, but this genetic disparity is of no known consequence except when it leads to the formation of blood group antibodies as in hemolytic disease of the newborn. Transplantation (or homograft) immunity apparently has no adverse effect on conception and fetal development even though that mechanism is capable of destroying an ordinary graft between mother and child. This curious situation probably depends upon many factors of a diverse nature, including many outside our knowledge, but from the standpoint of transplantation immunity the question arises, "Why are not most or all fetuses rejected by the mechanisms that reject other homografts?" In an effort to answer this question several mechanisms have been proposed that might serve to either prevent or protect the fetus from the consequences of maternal immunization. An immunologic inertness of hormonal origin seems to render gestating females less responsive to foreign antigens in general. Also the fetus, particularly the trophoblast, may be antigenically immature and thus present less of an antigenic stimulus than adult tissues. In addition, the placental "barrier" may serve to separate maternal and fetal elements, although recent evidence indicates that transplacental hemorrhage may occur in a relatively high percentage of all pregnancies. Each of these mechanisms undoubtedly has a protective function, but let us consider another aspect of the problem. There appears what may be an additional protective mechanism in the form of a maternal desensitization or tolerance induced by foreign antigens of fetal origin. This response is manifested in ante- or postpartum females to transplants of tissues but only to those genetically related to their progeny. Studies on transplantation immunity in postpartum females are of primary concern, since possible adsorption of antibodies by fetal tissues during gestation is eliminated.

When female and male belong to different but genetically homogeneous inbred strains, as in the case of inbred mice, females will also manifest a high degree of tolerance to grafts related to the breeding sire. For example, a female of 1 inbred strain is mated to produce 1 or more litters by a male of a second strain, and all progeny are discarded. The female will then show a suppressed immunologic response to transplants of tumors or normal tissues genetically related to the male. The following experiments are concerned with demonstrating this tolerant state and studying its nature and mechanisms of induction.

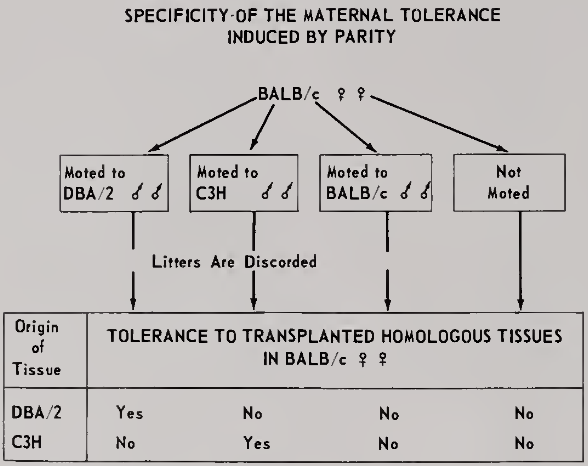
Tolerance Induced by Parity to Transplantable Tumors

Inbred female mice of the Balb/c strain were mated to either DBA/2, C3H, or Balb/c males to produce 1 or more litters. After bearing various numbers of litters, all postpartum females including a group of virgins were challenged with tumor homografts of either DBA/2 or C3H origin. Tolerance, as indicated by progressive growth of a significant number of the transplanted tumors, was seen only in females parous by males genetically related to the respective tumors. A summary of many experiments[1, 2, 3] each with concurrent controls is diagrammed in figure 1.

---

[*] These investigations were supported by a research grant (CA 05660) from the National Cancer Institute, Public Health Service, United States Department of Health, Education, and Welfare.

[†] Offered as part of the Sibley Memorial Hospital Number of the MEDICAL ANNALS for February, 1964.



Origin of Tissue	TOLERANCE TO TRANSPLANTED HOMOLOGOUS TISSUES IN BALB/c ♀ ♀			
DBA/2	Yes	No	No	No
C3H	No	Yes	No	No

FIG. 1. Specificity of tolerance induced by parity is evidenced by the fact that tolerance is observed only when there is a genetic concordance between the sire of previous litters and the subsequent homograft.

The necessity of a genetic relationship between the male and subsequent homograft is shown, e.g., by the fact that Balb/c females were unable to reject a tumor of DBA/2 origin only after they had borne litters sired by DBA/2 males. If maternal tolerance merely resulted from genetically unrelated matings or pregnancy per se, progressive growth of DBA/2 tumors would have been noted in females parous by C3H and Balb/c males respectively. The necessity of this genetic relationship also held for tumors of C3H origin. In these test systems and in others as well it was found that maternal tolerance is long-lasting and probably permanent. For example, when the time interval between parturition and tumor challenge was extended to 200 days the females showed the same degree of tolerance as those tested shortly after parturition. In addition, there are also indications that a preëxisting immune state can be abrogated in a small number of instances by specific parity. Balb/c females that were immunized and proved to be immune to DBA/2 tumors would often accept subsequent DBA/2 tumor grafts after having several litters by DBA/2 males. It is possible that this observation might account for past failures to bring about "rejection" of fetuses by the induction of transplantation immunity in females, since any preëxisting immunity would be destroyed during gestation.

The fact that this tolerance is specific, long-lasting, and can modify an immune state already in being serves to differentiate it from any nonspecific decrease in immune response of hormonal origin associated with the period of gestation.

Source of Antigenic Stimulation in the Induction of Maternal Tolerance

Knowledge of the antigen source that elicits tolerance by parity is of primary concern in the elucidation of responsible mechanisms. The 2 possible antigen sources are the semen or conceptus. In order to differentiate between the 2, the effect of insemination was tested in host female mice of the Balb/c strain by 2 different methods. In 1, both ovaries were removed and transplanted subcutaneously. In this ectopic site they continued to function as endocrine organs and render the females receptive to males. In a second group, both uterine horns were ligated near their junction with the oviducts. Each of these 2 groups was divided in half and mated to either DBA/2 (test) or Balb/c (control) males. All females were mated a minimum of 3 times, and matings were verified by the presence of vaginal plugs. This number of matings was chosen because tolerance increases with multiparity and this number of pregnancies produces a relatively high degree of tolerance in intact females. To study the combined effects of both semen plus conceptus as antigen sources, gravid uteri were removed from females 15 to 20 days pregnant by either DBA/2 (test) or Balb/c (control) males. Additional controls included females parous for 3 litters by DBA/2 males, intact primiparous females, and virgins. After these procedures all females were "immunized" with DBA/2 blood in order to heighten any potential host response and then challenged 10 days later with a DBA/2 tumor. The results are shown in table 1. Tolerance, as indicated by a significant percentage of females with progressively growing tumors, was found only in females previously pregnant by DBA/2 males. The percentage of tumors in these females differed significantly ($P > 0.05$) from all other test and control groups. The process of parturition apparently neither contributed to, nor was necessary for, tolerance induction, since females hysterectomized while pregnant manifested the same quantity of tolerance as did primiparous females. It appears that the antigenic stimulus originates from the conceptus prior to parturition rather than from the semen, but there is some evidence that the semen may induce a transient tolerance in a more closely related genetic system.[4]

TABLE 1: Tests on the Conceptus and Semen as Sources of Antigenic Stimulation in the Induction of Maternal Tolerance

BALB/c Females: Experimental and Control Groups	Mated to:	Tumor Challenge Takes/Total (Per cent)	Degree of Tolerance*
Uterine horns ligated, or both ovaries removed and transplanted subcutaneously, then all mated 3 times	DBA/2 BALB/c	1/30 (3) 2/30 (7)	– –
Removal of gravid uteri in first pregnancy	DBA/2 BALB/c	13/47 (28) 0/19 (0)	+ –
Intact, 3 previous pregnancies	DBA/2	11/13 (85)	+++
Intact, 1 previous pregnancy	DBA/2 BALB/c	12/43 (28) 0/18 (0)	+ –
Immune, virgins	—	0/36 (0)	–

* Tolerance is indicated by the inability of DBA/2 blood to immunize BALB/c females effectively against subsequent challenge with a DBA/2 tumor. The tumor (DBA59C) grew progressively in 80 per cent (39/49) of normal, intact, nonimmune virgin females.

Maternal Tolerance to Skin Homografts

Previous studies with tumor homografts demonstrated the presence of maternal tolerance, but progressive tumor growth gave no indication of the degree of tolerance in individual specifically parous females, since tumors, in contrast to normal tissues, can "override" weak differences in histocompatibility. Results obtained with skin grafts are more quantitative in that the increase in graft survival is directly proportional to the degree of homograft tolerance in an individual host. To test the degree of tolerance by skin homografts, Balb/c females were mated to either DBA/2 or Balb/c males to produce from 1 to 7 litters. After their last litter each female received a single graft of DBA/2 skin. A group of virgins was also grafted to serve as a baseline for comparison with other groups. Graft survival was not prolonged in any of 132 grafts made on females parous by Balb/c males irrespective of the number of previous litters, and survivals fell well within the expected range of grafts on virgin females (13.7 ± 0.3 days). Tolerance, as indicated by prolonged graft survival, was seen in females parous by DBA/2 males. Mean survival times increased progressively with the amount of multiparity and reached a maximum mean survival of 23 days in females with 3 litters, but no additional increase was obtained in females that had borne 4 or more litters. Thus, 3 litters produced a maximum obtainable effect. Survival times of up to 136 days were noted, but none of 185 grafts on specifically parous females survived permanently.

Characteristics of the "Partial" Tolerance Induced by Parity

Since none of the specifically parous females in the preceding study retained their grafts permanently, the tolerance induced may be said to be "partial" or "temporary." There are 2 possibilites that could account for this situation: 1. The host response to 1 or more graft antigens is partially or temporarily impaired. 2. The host response to 1 or more graft antigens is completely and permanently suppressed, while host reactivity to other antigens is either unaffected or only partially impaired. Either situation could result in a prolonged latent period or an immune response of low intensity resulting in prolonged but not permanent homograft survival. These 2 possibilities were tested with parental-strain skin homografts made on parous and virgin F_2 hybrid females of the Balb/c and DBA/2 strains. The essential findings (for details see reference 5) are summarized as follows: 1. The Balb/c and DBA/2 strains of mice differ by approximately 13 histocompatibility antigens. 2. Specific parity results in the induction of complete and permanent tolerance to 8 of these 13 antigens. Thus, when a skin homograft is transplanted onto a specifically parous female, the graft possesses 5 antigens to which she is not tolerant. These 5 antigens then elicit an immune response of low intensity, and graft survival is prolonged until immunity reaches a strength sufficient to destroy the graft. The question of why a female does not become tolerant to all antigens could be explained by factors such as insufficient dosage and antigenic immaturity of the fetus, but a definitive answer must await further investigation.

Implications of Maternal Tolerance: Choriocarcinoma, Transplantation of Normal Tissues, and Related Phenomena

The fact that maternal tolerance occurs in adults[1] and during pregnancy[2] offers many implications of wide interest. Peer[6] reported that the survival of skin grafts transplanted from child to mother was often greater than the survival of child to father grafts, which were rejected within an expected time interval. This finding is interesting because it may indicate a persisting maternal desensitization or tolerance, and our results tend to support such observations.

Maternal tolerance offers an explanation for the establishment, growth, and invasion of trophoblastic tumors in women. Tumors arising from this tissue are genetically and hence antigenically foreign to their hosts and should, at least on theoretical grounds, be rejected by an immune (homograft) reaction. It is possible that in some instances these tumors may succumb to an immune response, since of all tumors these show the highest rate of spontaneous regression. Prehn[7] has presented evidence which suggests that the frequency of choriocarcinoma in women increases with multiparity provided an age adjustment is made, and that if this is the result of increased maternal tolerance such a relationship would be consistent with that reported in mice.

In contrast to the relationship in the female, choriocarcinoma in the male is not a homograft. It is very possible that transplantation immunity may, at least in part, account for the successful chemotherapy of this tumor in women, but not in men. This concept received support from a series of experiments by Pierce and his co-workers[8] in which they transplanted choriocarcinomas from both men and women to hamsters. In this situation all tumors were on an equal basis with regard to their foreign environment and all behaved similarly to the action of drugs, thus showing that there is no intrinsic difference between these tumors regarding their response to drugs. It is suggested that drugs such as Methotrexate® may retard tumor growth for a sufficient period of time to allow for the mobilization of host defenses which ultimately destroy the tumor. We are currently investigating a second possibility, which is that drugs might, in addition to direct effects on the tumor, destroy maternal tolerance and thus aid in bringing about tumor regression.

In women with choriocarcinoma favorable results have been obtained with tissues of the husband being used as antigens in attempts to increase resistance. Paternal tissues would, of course, contain antigens in addition to those in the tumor, but these additional antigens may increase resistance to those shared with the tumor and act in a manner somewhat similar to that of an adjuvant. Cinader and his co-workers[9] reported an especially interesting case that was apparently drug-resistant but responded to immunization. The role of maternal tolerance in choriocarcinoma is not definitely known, but Robinson and his co-workers[10] recently reported that 2 women with choriocarcinoma exhibited specific tolerance to skin grafts from their husbands but promptly rejected grafts from unrelated donors. It is interesting to speculate that if the immunologic responses in women are similar to those in mice, which they appear to be, tolerance to only a majority of antigens in the tumor would allow progressive tumor growth. If, however, maternal reactivity to other antigens remained normal or only slightly suppressed, as happens in laboratory animals,[5] then regression might be in part brought about by an increased immunity to the remaining antigens in the tumor to which she was not tolerant. Another possibility is that if means can be found to abrogate maternal tolerance, this knowledge might prove of value in the therapy of tumors of trophoblastic origin.

An understanding of the responsible mechanisms also offers a possible solution to the transplantation of normal tissues and organs including bone marrow for replacement therapy in the treatment of leukemia by irradiation.

The often posed question, "Why are not all fetuses rejected by the mechanisms that reject grafts of other tissues?" can be answered on the basis of maternal tolerance. The incidence of hemolytic disease is lower than expected on a genetic basis, and one may speculate that the induction of a specific nonreactivity in a gestating female may have arisen in nature as an additional protective mechanism so that a fetus would be in fact "tolerated." Perhaps a malfunction of this mechanism might be manifested by hemolytic disease, spontaneous abortion, or possibly by some toxemias of pregnancy. For the present, many of these possibilities must remain in the realm of speculation, but some are yielding to experimental analysis, and it may be safely predicted that tolerance induced by parity will remain a fruitful area for future investigation.

Summary

Tolerance induced by parity is a suppression of a mother's immunologic response to tissue homografts genetically related to her progeny. Experiments with mice reported here show that tolerance was induced during gestation by an antigenic stimulus originating from the concep-

(*Continued on page 114*)

Observer Variation in Interpretation of the Electrocardiogram*

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DIFFERENCES in electrocardiographic interpretation due to observer variation have been emphasized by Davis,[1] Acheson,[2] Epstein et al,[3] and Segall,[4] while the basis for observer variation in clinical electrocardiography has been discussed by Caceres.[5]

In this study the significance of observer variation in relation to clinical practice is examined by comparing 2 independent reports of a series of unselected hospital electrocardiograms in order to determine the extent and nature of disagreement on diagnostic findings and time measurements, and to point out the possible clinical implications.

Material and Methods

Five hundred and sixty-one electrocardiograms of adult hospital patients, taken consecutively on the same direct writing recorder,† were routinely processed through a hospital heart station.‡ During this period 1 of 3 electrocardiographers, supervising the reports made by members of the house staff on the reading assignment, constituted the first set of readers; interpretations were made according to individual backgrounds of training and experience. These interpretations were classified according to table 1.

TABLE 1: **Classification of Electrocardiographic Diagnostic Findings**

1. Normal
2. QRS abnormalities
    a. Ventricular hypertrophies and low voltage
    b. Ventricular conduction defects including significant left axis deviation
    c. Myocardial infarction
3. ST-T abnormalities including digitalis effect
4. Arrhythmias and A-V conduction defects
5. P abnormalities

The same electrocardiograms were later analyzed independently by the second set of readers, 2 of the authors jointly, according to the spatial vector approach.[6] These interpretations were also classified as in table 1. Both sets of readers also measured the longest PR and QT intervals and the QRS duration to the nearest 0.01 second in addition to making an interpretation.

Results

Agreement on interpretation was said to occur when diagnostic findings, classified according to table 1, reported by both groups were the same, and disagreement when 1 or more diagnoses were reported by only 1 of the 2 groups. There was agreement in 335 (59.7 per cent) of the total 561 electrocardiograms (table 2) and disagreement in 226 (40.3 per cent). The proportions of "normal" electrocardiograms in each of these categories were 17.6 and 8.9 per cent respectively; the first percentage consists of electrocardiograms read as normal by both sets of readers, and the second percentage, those considered normal by either 1 of the 2 sets of readers.

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* In partial fulfillment of Contract No. PH 86-62-213, Department of Health, Education, and Welfare, Public Health Service, Bureau of State Services, Division of Chronic Diseases, Heart Disease Control Program.

† Sanborn Company, Waltham, Massachusetts.

‡ The George Washington University Hospital, Washington, D. C.

TABLE 2: Comparison of Diagnostic Findings, and Proportions of "Normal" and Abnormal Electrocardiograms

	Total		"Normal"		Abnormal	
	No.	Per cent	No.	Per cent	No.	Per cent
Agreement	335	59.7	99*	17.6	236	42.1
Disagreement	226	40.3	50†	8.9	176	31.4
TOTAL	561	100.0	149	26.5	412	73.5

* Number considered normal by both sets of readers.

† Number considered normal by only one set of readers.

In 226 electrocardiograms on which there was diagnostic disagreement there were 307 instances of an abnormality diagnosed by 1 reading group but not by the other. An analysis of the disagreement is given in table 3. The disagreement concerning QRS abnormalities was subdivided into the following areas of importance in clinical practice: presence or absence of myocardial infarction, conduction defects, and ventricular hypertrophy. A tabulation of this is given in table 4.

TABLE 3: Analysis of the 307 Instances of Diagnostic Disagreement in 226 Electrocardiograms

Type of Abnormality	Number	Per cent
QRS	109	35.6
ST-T	134	43.6
P	30	9.8
Arrhythmia	34	11.0
TOTAL	307	100.0

Correspondence of time measurements was divided into these categories: agreement, difference of 0.01–0.02 second, and difference of 0.03 second or greater. The results of comparison of the longest PR and QT intervals and QRS duration are given in table 5. There was agreement between the 2 sets of readers on approximately one-third of all 3 of these measurements; among the remainder the greatest differences occurred most frequently with measurements of the QT interval and least frequently with those of the QRS duration.

TABLE 4: Analysis of Diagnostic Disagreement on QRS Abnormalities

Type of QRS Abnormality	Number	Per cent
Myocardial infarction	39	35.8
Conduction defects	29	26.6
Ventricular hypertrophies	41	37.6
TOTAL	109	100.0

TABLE 5: Comparison of Time Measurements as Recorded by Both Reading Groups

	PR Interval		QRS Duration		QT Interval	
	Number	Per cent	Number	Per cent	Number	Per cent
Agreement	197	38.3	217	40.0	173	33.6
Difference of 0.01–0.02 sec.	249	48.5	295	54.5	190	36.9
Difference of 0.03 sec. or greater	68	13.2	30	5.5	152	29.5
TOTAL*	514	100.0	542	100.0	515	100.0

* The difference between totals for PR, QRS and QT is mainly accounted for by the presence of atrial fibrillation.

Discussion

The extent of observer variation among those who regularly report on electrocardiograms must be appreciated if the associated diagnostic errors and their clinical consequences are to be correctly evaluated. While the amount of variation in interpretation between 2 given groups may be expected to bear an inverse relationship to the training of the readers, it is considered that the variation encountered in the present study, in which the findings of adequately trained readers are compared, is probably representative of current electrocardiographic practice.

Kossmann,[7] discussing the difficulties in defining the normal electrocardiogram, includes the "error of measurement" or the fact that 2 different people measuring the same interval may get a different result, and even more important, the different definitions of a similarly designated interval by different workers. Identification of wave forms, a preliminary step in interpretation, depends on subjective observation,[5] and therefore the measurements used in electrocardiography are subjective calculations. This is evident from comparison of time measurements as calculated by each group; such poor reproducibility would be unacceptable for truly objective measurements. It will be noted that the greatest degree of agreement over measurements (table 5) was found with duration of the QRS complex and the least agreement with the duration of the QT interval, this perhaps being related to better definition of the end of the QRS complex than that of the T wave.

Variation in methods of measuring and in diagnostic criteria is responsible for divergence of opinion on interpretation. Disputes over the electrocardiographic diagnosis of myocardial infarction may, for example, be due to different estimates of the duration of a Q wave, to different criteria for diagnosis, or to both.

Davies[1] has given examples of mistaken electrocardiographic diagnosis of myocardial infarction contributing to serious error in diagnosis. How frequently such problems may arise is suggested by our finding that myocardial infarction (of any age but usually old) was reported by only 1 of the 2 reading groups in 39 (7.0 per cent) of 561 electrocardiograms. Davies[1] and Prinzmetal et al[8] refer to the pitfall of making a diagnosis of heart disease where none exists through misinterpretation of ST-T abnormalities. We found that in 134 electrocardiograms (24.0 per cent of the total) ST-T abnormalities were reported by only 1 of the 2 reading groups. Such discrepancies in electrocardiographic interpretation point to a potential source of clinical diagnostic error and are therefore a matter for concern.

Within the limitations imposed by currently used standard electrocardiograph instrumentation, it is thought that improved methods of measurement and the use of more clearly defined diagnostic criteria could contribute to increasing accuracy in interpretation and to reducing observer variation.

Summary

Five hundred and sixty-one electrocardiograms of unselected adult hospital patients were reported independently by 2 groups of physicians. The findings were analyzed for observer variation regarding interpretation and measurement of PR, QRS and QT durations.

There was disagreement on interpretation in 40 per cent of the electrocardiograms. QRS and ST-T abnormalities accounted for over two-thirds of the disagreement.

The high proportion of disagreement on the diagnosis of myocardial infarction and ST-T abnormalities is of particular importance in view of the clinical implications of these interpretations.

There was disagreement on time measurements in about two-thirds of the reports.

The amount of observer variation found in this study is thought to be representative of current electrocardiographic practice and suggests the need for better definition of diagnostic criteria and improved methods of measurement.

N. B. We are greatly indebted to Dr. John M. Evans for his advice and guidance during the study and to Dr. Clayton B. Ethridge for critically reviewing the manuscript.

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Neuroblastoma in Infancy and Childhood

General Discussion of the Disease, Brief Survey of Some Long-term Survivors with Bone Metastases, and Report of a Case

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BECAUSE IT IS COMMON and because early detection and aggressive treatment have been found to offer a relatively high salvage rate, neuroblastoma should be of practical interest.

Cancer is today the primary disease killer of children in the United States, and neuroblastoma follows leukemia in frequency of malignant disease.

The entity of neuroblastoma was first described by Virchow in 1864 as a "glioma." It was originally considered to be a highly malignant and hopeless disease. The cases reported by Pepper (1901) and Hutchinson (1907) were all rapidly fatal. However, more recent reports of series of cases, such as that of Gross,[1] show a salvage rate approaching 40 per cent among children treated during the past decade. Surgery, radiation, chemotherapy, and supportive therapy have been shown to be of value individually and especially when used in combination in multiple-sided, aggressive attack.

Most children with neuroblastoma have bone metastases when first seen and the diagnosis made. The presence of these bone lesions renders the prognosis grave, but, in contradiction to opinions that a hopeless situation exists, I maintain that such an attitude is not wholly realistic. Not only do spontaneous remission and regression occasionally occur, but aggressive therapy, it is contended, can also be justified with some hope of "cure."

Neuroblastoma is primarily a disease of infancy and childhood but can occur at any age. About 80 per cent of reported cases are in children under 5 years of age, and 30 per cent are in children less than 1 year old. The tumor arises from that portion of neural ectoderm which goes to form sympathetic nerve ganglia. Hence it is not surprising that, although 40 to 50 per cent[1, 2] of all primary lesions are found in the adrenal medulla, they may arise in the retroperitoneal region of the abdomen, the thorax, the pelvis, and the cervical regions. Apparent multiple primary lesions are rare but have been reported.[2]

The natural history of the disease is gloomy if left untreated. The neoplasm is highly invasive, and metastases occur early and widely. But for a few exceptions the course is rapidly downhill with death occurring within weeks and almost always within 6 months from the time of diagnosis.

In this paper "neuroblastoma" is used to cover tumors designated as "ganglioneuroblastoma," "sympathogonioma," etc. Retinoblastomas, medulloblastomas, and other intracranial tumors, although histologically very similar or identical, are excluded.

Pathologic Considerations

The tumor tissue of neuroblastoma shows a wide variation of differentiation, both from specimen to specimen and also within most individual specimens. Some tissue may have the characteristics of a benign ganglioneuroma while other portions may show complete lack of differentiation.

Generally the tumor is highly cellular, infiltrating, and very vascular with vessel invasion and little stroma. Many mitotic figures and polymorphic nuclei are seen. Cells are arranged in broad sheets and clusters. "Pseudorosettes" and neurofibrils are frequent and considered by many to constitute adequate microscopic criteria for diagnosis.[1, 2, 3]

There are gross characteristics which make for a fairly accurate diagnosis at operation. Early the tumor seems self-contained. It appears well encapsulated with a smooth contour. It has a reddish-grey and often a violaceous tinge. The tissue is soft and friable. Late or advanced disease shows a high degree of invasion of adjacent and regional tissue. The tumor is lobulated and nodular, and when invasion is present the mass cannot be freely dissected from the involved tissue.

Metastases occur early and are common. Between 70 and 80 per cent of children have metastases when first seen. The most common site of distant metastases in reported series is bone (over 50 per cent) with a predilection for long bones and skull. Liver involvement is common, and children under 1 year of age may have metastases grossly limited to that organ.[4] Next most common is skull and/or brain, including periorbital growth. The tumor can and does metastasize most anywhere in fulminating cases. Involvement of the lungs is less common (approximately 20 per cent) than with Wilms' tumor.

The phenomenon of spontaneous regression and remission is rare, occurring in about 1:100,000 cases of malignant tumors. However, neuroblastoma may be the most common tumor to exhibit this phenomenon. Everson and Cole[5] reported 47 verified cases, and 10 of these were neuroblastomas. Changes may be along 2 lines: The tumor may undergo hemorrhage and necrosis and disappear, or it may undergo spontaneous maturation (metaplasia) and become ganglioneuroma.[6] Surgical findings of benign ganglioneuroma tissue in the adrenal medulla and the regional nodes[1] are strongly suggestive that such a change has taken place. Possible mechanisms of control have been discussed by Stewart.[7]

Clinical Picture

The clinical and laboratory findings follow from the pathologic behavior of the disease. The most common finding is a mass which may or may not be painful. Any mass in children should be considered malignant until proven otherwise[6] and treated accordingly without delay. Pain, pallor, fatigue, weight loss, and anorexia are common. Indications of metastases such as nodular enlargement of the liver, bone involvement and possible fracture, swelling and pain involving the calvarium, and infra-orbital ecchymosis and proptosis are characteristic. Chest involvement will eventually give pulmonary symptoms when present. Anemia is common and may or may not be associated with marrow replacement. X-ray findings include kidney displacement on pyelogram, an opaque mass which may have flecks of calcification, and bone changes which may be either osteolytic or osteoblastic.[8]

The course, as mentioned, in untreated cases is that of rapid deterioration and death. Treatment has been shown to be of at least palliative value in most fatal cases. Phillips[2] believes that "the natural history of neuroblastoma shows a tendency toward spontaneous remission; if a fatal termination can be prevented during the acutely malignant phase, both by sustaining the patient and by full utilization of all available therapeutic agents, the disease may assume a less aggressive and more chronic form and ultimately be brought under control." Cure, if obtained, may be attributed to maturation, spontaneous destruction, or successful elimination of the disease by effective therapy, or a combination of these.[6]

Treatment and Results

The modes of treatment which may be employed against neuroblastoma effectively are surgery, radiation, chemotherapy, and general support. Treatment is individualized as dictated by judgment and findings, and a wide spectrum of opinion is always obtainable. Be the objective prolongation of happy life or cure, an aggressive multiple attack seems easily justifiable in the light of current levels of knowledge.

What constitutes a "cure" is a pertinent question. Gross's standard of 2 years' survival without evidence of disease seems of high practical value. A 1-year survival in pediatric cancer is generally considered the equivalent of a 5-year survival in adult cancer.[9] In neuroblastoma patients there have been very few exceptions to Gross's criterion. In his 217 cases,[1] age of patient, extent of disease, and type of therapy have been found to have a bearing on chances for survival. Patients under 2 years of age had a survival rate of 45 per cent, while those over 2 had only 11 per cent. This may be due to earlier detection and/or intrinsic control.

Surgery

Surgical ablation of the tumor whenever possible would seem to be the treatment of choice initially. Total gross removal of the tumor with postoperative irradiation to the primary site yielded a cure rate of 86 per cent among patients with no demonstrable distant spread.[1] However, even when the tumor cannot be excised in toto there is apparent benefit in excising as much as possible. Koop[10] speaks of the benefit of "surgical insult." One of his conclusions is that the "removal of all or a major portion of a neuroblastoma, even in the presence of metastases, seems to carry a better survival rate (58 per cent) than is found when biopsy alone is performed on an 'inoperable' tumor (9 per cent)."

As for technique, it would seem wisest to approach abdominal tumors transperitoneally and take the usual precaution of initial pedicle ligation and gentle handling, thereby giving maximum range for exploration and minimum chance of distant hematogenous spread. If complete surgical extirpation is not feasible, the more tumor tissue removed the better, since radiation and chemotherapy may be and often are employed, and since partial excision with this tumor seems in itself efficacious. It does not seem indicated to surgically compromise more vital viscera such as the stomach or liver.

Radiation

Neuroblastoma is usually a radiosensitive tumor, and the dose employed varies with the response of the malignancy. Most authorities advocate postoperative irradiation to the bed of the primary lesion, but Seaman[8] (in cases in which the tumor is thought to have been totally removed) is an exception. However, he does advocate therapeutic doses to all known foci of disease. Effective tissue doses range from 1,000 to 3,000 r generally, given at a 1,500 r/week rate. Seaman found tumor doses ranging from 1,300 to 3,000 r in 22 to 55 days effective in his series. Of special interest in Wittenborg's series[4] were 6 patients with liver involvement as the only distant spread who were treated with radiation and who survived.

Generally agreed upon is the use of radiation to be given as soon as possible following surgery. No deleterious effect was noted among the patients at the Children's Medical Center in Boston with regard to impaired wound healing. Preoperative radiation is considered of little if any value. The most limiting factor would seem to be hematopoietic depression, but this can be handled supportively with transfusions, gamma globulin, antibiotics, etc.

Other toxic effects of radiation must be anticipated and guarded against. For example, 2,300 r to 1 kidney in 5 weeks has been found to give a radiation nephritis.[8] Scoliosis may be prevented by including both sides of vertebrae within a field of fire. Since the energy absorption of normal bone is less with voltage of 1 million or more, and because skin damage is less over a port of entry, it would seem wise to use "supervoltage" when such machines are available. Secondary benefit of high voltage is decreased "scatter" and a shorter delivery time during which the position of the child must be maintained.

Case: Author Date	Initials Sex Age at Diagnosis	Extent of Disease
Stewart[7] 1952—report (1937)	Infant	Destructive lesion upper femur (L), primary unknown
Seaman and Eagleton[8] 1951	J.L.J., male, 13 mos.	Mediastinum, long bones, orbit, skull
Goldring[14] 1951	G.S., male, 6 mos.	Right adrenal, liver, bone, orbit
Anderson[9] 1952	G.C., male, 7 mos.	1950—Left adrenal (240 Gm.); femurs (by X-ray)
Previously unreported (1954)	B.L.A., female, 10 mos.	Left adrenal gland, nodes, right temporal (orbital)

The 64 per cent salvage rate for patients with partial excision and irradiation in Gross's series speaks well for the effectiveness of radiation.

Chemotherapy

Chemotherapy is the most recent of weapons in the arsenal against neuroblastoma. Alkylating agents are the category of choice.

Farber[11] studied 52 children over a period of 4 years. All had metastatic disease and had shown a poor response to X-ray therapy. At the time of publication 39 were dead and 13 were alive. Among the 39, marked regression was found in 9 and transient improvement in 8 others. Among the 13, 9 had shown important changes, including 1 child with bone lesions surviving for 18 months.

Nitrogen mustard, folic acid antagonists, and triethylmelamine were among the drugs used, in some instances combined with cortisone. Phillips and Dargeon at Memorial Hospital give nitrogen mustard (0.4 mg./Kg.) concomitantly with the first X-ray treatment.[2] They also incline toward periodic "spurting" of drugs, using them 7 to 10 days each month.

As with radiation, resistance is prone to occur. Farber[11] advocates research to study modes of action, find new effective compounds, and to study reasons for resistance.

TABLE 1: Known Cases of Neuroblastoma with Prolonged Survival Despite Bone Metastases

Therapeutic Management					Result	Comment
Surgery	Radiation			Chemotherapy Other		
	Primary	Soft Tissue	Bone			
0	0	0	Yes (adequate)	0	Well 14 yrs. later	No biopsy; probably "spontaneous"
0	Yes *47 days* 2,000 r in air	Yes	Yes 800 r air	0 Transfusion	Living and well over 63 months	Aggressive radiation
Explored; biopsy only (including liver)	Yes	Yes	0	Transfusion	Well 2 yrs. postoperatively; bones healed	? Spontaneous
Gross removal	750 r	0	0	ACTH	Went into remission 2 mos. postoperatively; well 19 mos.	No effort made to explain role of ACTH; ? spontaneous
Primary excised; biopsy of temporal lesion	Yes	Yes	Yes	Nitrogen mustard; transfusion	Living and well over 10 yrs.	Aggressive therapy

Drugs other than the alkylating agents have been used, but results are not too impressive. Vitamin B^{12} was given enthusiastic reports in England,[12] but the results in the United States have not been impressive. Compounds such as actinomycin[13] have also been tried but found wanting.

General Support

Although important, the total support of the patient can only be mentioned. Chronically ill children undergoing surgery, radiation, and chemotherapy need support in such areas as hematopoiesis and nutrition. Needless to say, they need also to be protected against intercurrent infection. Complications must be handled as they arise.

Management of Patients with Bone Metastases

Of some particular interest is the management of patients with bone metastases. Most children have these when first seen. Over 50 per cent of Gross's series[1] and some 70 per cent of Phillips'[2] had bone lesions. That these represent hematogenous spread and therefore a grave prognosis cannot be disputed. However, the outlook is not entirely bleak.

Four cases of survival have been reported in the literature,[6, 7, 9, 14] and 1 case previously unreported is known to me. These apparent cures are listed in table 1. Although at least 3 of them may fall into that hazy category of "spontaneous regression and remission," it may be worth commenting that all received at least some form of therapy. All patients were living and well without evidence of disease when last heard from.

The opinion that the presence of bone metastases is synonymous with fatal outcome is widely held, and many believe that it is futile to undertake aggressive treatment in the hope of cure. Certainly, the 5 cases in table 1 offer little weight against the hundreds of fatal cases. However, because the opinion mentioned is so predominant, patients with bone metastases who have received aggressive treatment are scarce in themselves.

It is also possible that there may be other unreported cases of recovery which may have been discounted by virtue of such recovery. For example, Dr. Wittenborg, in a personal letter, wrote of 1 case at the Boston Children's Medical Center: "We have only 1 patient who has survived with bone metastasis, and on review of the old films this metastasis is a questionable lesion and no biopsy has ever been secured of this lesion."

I believe that in appropriate circumstances aggressive treatment in the hope of cure is justified in patients with bone lesions. The following case report may lend some small credence to that philosophy.

Report of Case

B. L. A. was admitted to a military medical center on January 11, 1954. At the age of 8 months she had been noted to have infra-orbital ecchymoses, and the question of leukemia had been raised. A photograph of the child at age 7½ months shows a mass in the right temporal region (figure 1). X-ray films at 10 months showed the temporal mass to be osteolytic; and a biopsy returned the tissue diagnosis of neuroblastoma. At this time a left upper quadrant mass was noted, and the child was referred for definitive therapy.

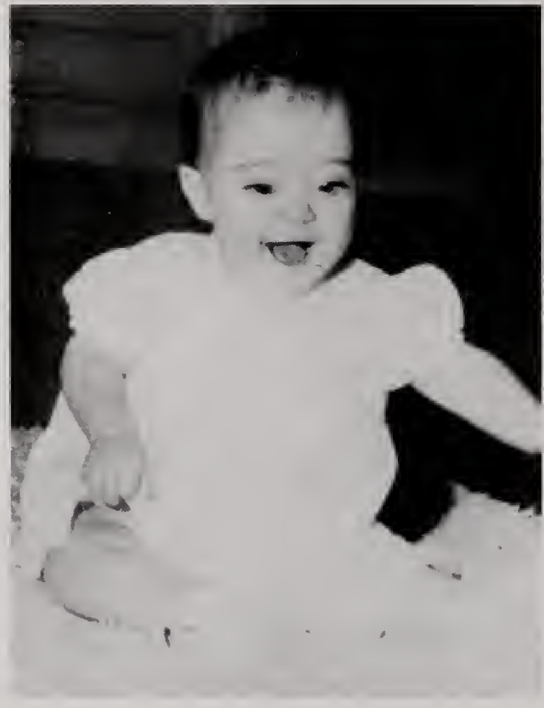
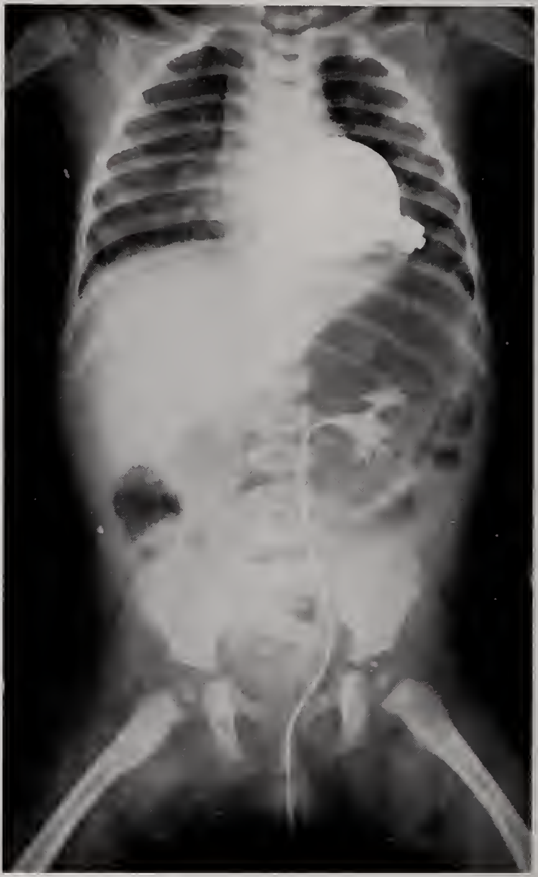


FIG. 1. B.L.A. at 7½ months; right temporal mass and infra-orbital ecchymoses are seen.

Physical examination on admission showed a well-developed, well-nourished child with a 2 by 1.5 by 0.5 cm. mass in the right temporal region. No lymphadenopathy was noted. An intravenous pyelogram on January 13, 1954 showed downward displacement of the left kidney with distortion of the upper pole (figure 2). Blood count and urine were unremarkable. Skull films showed a 3 by 5 cm. defect in the right temporal bone. The remainder of a skeletal survey was unremarkable.

On January 19, 1954 the patient underwent abdominal surgery. A hard mass about the size of a small egg was found involving the left adrenal and displacing the kidney. There were some firm nodes along the renal pedicle and the aorta. The mass was excised in its entirety, and the aorta was stripped of nodes and fat from the diaphragm to the left renal pedicle. The left adrenal tumor was neuroblastoma, and the nodes were microscopically involved.

On the third postoperative day nitrogen mustard was started and the child received 6.9 mg. over a period of 4 days. Immediately following, the patient was given a course of radiation therapy to the skull lesion and to the primary site. The right temporal lesion was treated through a 6 by 8 cm. field with a 200 kv machine. Opposing thoraco-abdominal 6 by 8 cm. ports were used. Depth doses of 2,025 r to the temporal lesion and 1,105 r to the left renal bed in 23 days were given. The white blood cell count dropped to 2,000. The child was transfused with a total 500 c.c. of whole blood. By April the white blood cell count was up around 4,000, and the hemoglobin was 80 per cent.



U. S. Army (AFIP) Photograph

FIG. 2. Preoperative pyelogram showing downward and lateral displacement of left kidney.

The child was followed at 6-month intervals for 3 years. She did well. A questionable lesion in the femur never materialized. The right temporal bone healed. The hair returned.

The child was last seen by me in June of 1959, 5½ years after diagnosis and treatment (figure 3). She was then a tall, tanned, well-proportioned youngster. She attended school and was an active child for her age. Her appetite was good. No masses or nodes were found on physical examination. She still had the same right optic atrophy, possibly attributable to retrobulbar hemorrhage associated with skull radiation. There were no skin nodules, and the surgical scar was well healed.

The child and her family physician were last contacted in late January, 1964. B. L. A. continues to enjoy excellent general health with no sign or symptom of her previous illness. Hence she presents herself as a case of neuroblastoma with bone metastases, proven by biopsy, who is living and well without evidence of disease 10 years following diagnosis and treatment.

Summary

Because of its unfortunate frequency, a general review of neuroblastoma in infancy and childhood has been presented. The pathology and natural history of the untreated malignancy have been described as giving a rapid and almost uniformly fatal outcome. However, early detection and aggressive treatment have yielded a salvage rate close to 40 per cent in reported series during the past decade. Current concepts of treatment using surgery, radiation, and chemotherapy have been discussed.

Because over half of the children with neuroblastoma have bone metastases when first seen, the second part of this article was devoted to the management of patients with bone lesions. Although the prognosis with bone involvement is grave, the outlook does not appear entirely bleak. Four cases of apparent cure from the literature have been tabulated and a case report of a child who is apparently cured after some 10 years has been presented in more detail. Early, aggressive treatment with all modalities, including therapeutic radiation to apparently localized bone lesions, seems justifiable.

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FIG. 3. B.L.A. as she appeared in 1959, 5½ years after treatment. There was no evidence of disease.

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Bilateral Brenner Tumors

Review of the Literature and Report of a Case

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The first Brenner tumor of the ovaries was described in 1898 by Macnaughton-Jones[1] 9 years prior to Brenner,[2] who added 3 cases and described this tumor as "oöphoroma folliculare" because he thought the origin was the graafian follicle. However, 25 years elapsed before the eponymic term was introduced, largely through the efforts of Meyer,[3] who further elaborated about this neoplasm and who also suggested that the origin was from Walthard cell rests.

In 1942 Fox[4] reviewed the literature and found 170 cases of Brenner tumors, of which 13 were bilateral. Since then the number of reported cases of unilateral Brenner tumors has reached 500, and the number of cases of bilateral Brenner tumors reported has reached 32[5-20] with the 2 cases described by Kretchmar, Dietel and Goodale.[21] This makes a 6 per cent incidence of bilateral Brenner tumors in all cases reported to date.

There is some speculation as to the histogenesis of this tumor. In addition to Meyer's theory Stohr[22] thought that the origin of this neoplasm occurs from the rete ovarii. Greene[23] suggested a multiple origin from ovarian stroma, ovarian epithelium, and rete ovarii. Jondahl, Dockerty and Randall[7] believe that this type of tumor originates from teratomas. Arey [24] considers the germinal epithelium of the ovarian surface as the source of this tumor.

The majority of these neoplasms are solid and small, with many being microscopic. However, Ince and Salm[25] reported a Brenner tumor weighing 8.7 Kg. A significant number are found in the walls of ovarian cysts, especially the pseudomucinous cystadenomas. They occur most frequently in postmenopausal women, and about 50 per cent of them have been reported to occur in women over the age of 50. There seem to be no characteristic symptoms and no apparent race predilection. Ming and Goldman[26] believe these tumors have hormonal activity, while Farrar, Elesh and Libretti[27] found an estrogenic effect in 7.5 per cent of cases which they attributed to theca-like cells which are occasionally found in the stroma of these neoplasms. On the other hand, Jondahl, Dockerty and Randall[7] found no evidence of endocrine function in 31 cases. Peck and Leary[9] reported similar results.

The first case of a malignant Brenner tumor was reported in 1944. Woodruff and Acosta[28] recently reviewed 8 cases of malignant Brenner tumors from the ovarian tumor registry. In 1959 Foda and Shafeek[29] reported 2 cases of malignant tumors, bringing the total number of malignant Brenner tumors to 14.

Report of Case

A 37-year-old nulligravid colored woman was admitted to the Washington Hospital Center with the complaint of an enlarging abdominal mass causing lower abdominal discomfort and dyspareunia of about 1 year's duration. Her menstrual history was normal, and the remainder of her history was not remarkable. A firm, irregular, nontender mass was palpable which extended to the level of the umbilicus. This was confirmed by pelvic examination. A tentative diagnosis of a myomatous uterus was made. The adnexa could not be outlined clearly. Routine laboratory data were within normal limits.

A pelvic laparotomy was performed, and dense adhesions were found which involved the adnexa and lateral pelvic walls. The uterus was found to be the size of a 6 to 8 weeks' gestation and was distorted by several myomata. Both fallopian tubes were slightly dilated and adherent on either side to ovoid, firm, yellow-white tumors which were slightly smaller than the uterus. In view of these findings a total abdominal hysterectomy, bilateral saplingo-oöphorectomy, and incidental appendectomy were performed. The postoperative course was uneventful, and the patient was discharged on the eighth postoperative day.

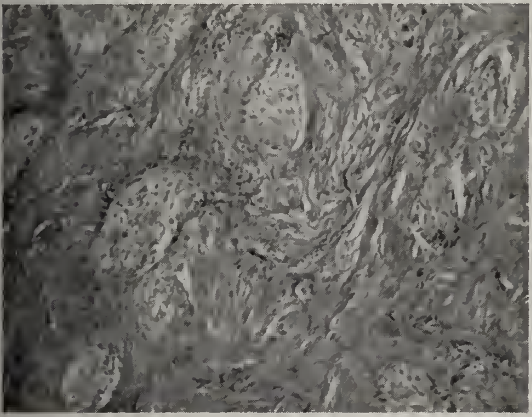

FIG. 1. Right ovary depicting the characteristic nests of epithelial cells in a background of fibromatous connective tissue.

Pathologic examination of the uterus showed measurements of 13 by 7 cm. including 3 myomata measuring up to 5 cm. in greatest dimension. Both tubes were occluded and dilated, measuring 1.5 cm. in diameter. Attached to each of these tubes on either side were ovoid, firm, yellow-white masses, the left measuring 12 by 10 by 9 cm. and the right 10 by 8 by 7 cm. Each of these masses contained a normal ovary on its surface. Cut sections revealed a gritty, nonencapsulated, yellow-white, whorled surface. Microscopic examination showed nests of epithelial cells surrounded by fibromatous connective tissue (figures 1 and 2). The final pathologic diagnosis was bilateral Brenner tumors of the ovaries, bilateral chronic salpingitis, myomata of the uterus, proliferative endometrium, and squamous metaplasia of the cervix.

Comment

This is a case of a bilateral Brenner tumor proven by histopathologic section that showed no evidence of estrogenic effect. The only symptom which could be attributed to the ovarian tumors is the steadily enlarging abdominal mass despite the fact that these are known as slowly growing tumors. These neoplasms were not suspected preoperatively but were discovered incidentally on examination of the specimens. The dyspareunia and the abdominal discomfort which complicated the symptoms were probably due to the chronic salpingitis with its resultant adhesions.

Summary

A review of the literature on Brenner tumors has been presented in addition to a report of a case of bilateral Brenner tumors. This brings the total number of reported cases of bilateral Brenner tumors to 34.

Addendum: The number is 34 in the summary instead of 33, since a case of bilateral Brenner tumors was reported in the February 1964 Medical Annals of the District of Columbia by Leo C. Varden, M.D., of the Department of Obstetrics and Gynecology, Sibley Memorial Hospital, Washington. This case was not known to us until after our paper had been written.

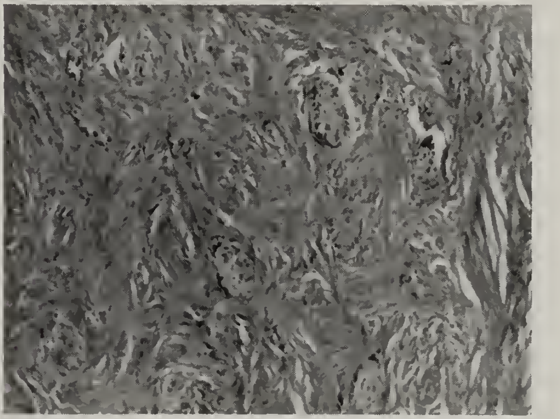

FIG. 2. Left ovary also showing the epithelial nests set in a dense fibrous stroma.

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(Continued on page 140)

Some Observations on Causes of Physician Professional Liability*

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PROFESSIONAL LIABILITY is not a new or unique problem for the physician. Indeed, well before the birth of Christ the Babylonians, through the Code of Hammurabi, prescribed punishment for the surgeon who was negligent in the application of his learning, and, moreover, this punishment could be drastic, even leading to the loss of one or both hands. But what has happened is that the present-day patient—and the courts—expect much more of us in medical care than was expected centuries ago. Why this has happened and what factors have led to our malpractice problems of today is the subject for discussion.

Let me first explain what is meant by the term professional liability or, perhaps, as some of you may better recognize it, medical malpractice.

In an action brought before the King's Bench in the year of 1374 the court said, "If a surgeon does so well as he can and employs all of his diligence to the cure, it is not right that he should be held culpable." This brief but well-phrased statement served for many years as the cornerstone of our law on malpractice. It emphasized that a physician was not a warrantor of cures, and, if he applied his knowledge properly and diligently, he could not be held accountable for a bad result.

Almost a century ago this principle was reaffirmed by William Howard Taft when he said, "A physician is not a warrantor of cures. If . . . a failure to cure were held to be evidence, however slight, of negligence on the part of the physician or surgeon causing the bad result, few would be courageous enough to practice the healing art, for they would have to answer financial liability for nearly all the ills that flesh is heir to."

But all this has now changed. Permit me to bring you up to the last decade by reading verbatim a statement from a California State Supreme Court decision of 1955 in the case of Bauer versus Otis. Here is what the court said: "It is a matter of common knowledge among laymen that injections in the muscles of the arm, as well as other portions of the body, do not cause trouble unless unskillfully done or there is something wrong with the serum." In other words, what the court says is that a physician is guilty and liable for damages if a bad result occurs after an injection. This further means that when the physician takes the witness chair in his own behalf he must explain away the inference of guilt. How different this is from the previous statements.

Definition of Malpractice

Getting back to the definition of malpractice, here is the way we define the term for medical students in our courses on legal medicine. The law requires that a physician who undertakes to diagnose and to treat a patient must possess that skill and knowledge commonly possessed by other ordinary physicians in the same locality and, further, that he must apply this skill and knowledge in a prudent and diligent manner. Failure to do this constitutes malpractice. If the physician holds himself out to be a specialist he must meet the standards of practice of those other specialists in his designated field of practice and in his area. That professional services may be rendered without charge makes no difference in the legal interpretation of the doctor's responsibility. He is just as liable to a claim for malpractice when he affords free care as he is if he charges for his service.

The law student is taught a somewhat more involved definition, revolving around what we call the Four D's of malpractice: Duty, Dereliction, Direct Cause, and Damage. To obtain a judgment against a physician for negligence the patient must show: (1) that the physician owed a duty to the patient, (2) that the physician was derelict and breached that duty by failing to act as the ordinary physician in the same community would have acted under the same or similar circumstances, (3) that such failure or breach was the direct cause of the patient's injuries, and (4) that damages to the patient resulted therefrom. Let us examine these points more closely.

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* Presented before the Academy of Medicine of Washington, D. C., at its fall meeting at the Cosmos Club, November 14, 1963.

The first D, duty, is established by showing the existence of a physician-patient relationship. This relationship is usually established in an implicit fashion by a patient seeking out a physician, following which the physician undertakes to furnish the needed medical service. This relationship continues until the patient has dismissed the doctor or until the doctor has discharged the patient.

The second D, dereliction, is at the heart of the problem. Here the patient must show, ordinarily by expert medical testimony, that the physician failed to act as other physicians in the same or similar community would have acted under like circumstances. This is the most difficult point for the patient to prove.

The third D, direct causation, is one in which the patient must prove that the injury was directly caused by the physician's negligence and not by some other cause.

The fourth D, damage, indicates that the patient must prove the fact there is a damage or injury and that such damage is of monetary value.

General Causative Factors

Now, let us return to a discussion of the causative factors for the increase in claims against the physician for professional liability, particularly during the past 2 decades. The first malpractice action in the United States was reported against a Connecticut physician in 1794, but the problem remained dormant for almost a century and a half thereafter. The number of cases began to pick up during the 1930's, increasing more rapidly in the 1940's (and particularly after World War II), and finally culminating in the astounding rapid rise of malpractice suits during the 1950's.

The malpractice hazard has increased everywhere throughout the United States, the only difference being that it is worse in some areas than others. Not only has the number of cases multiplied beyond all expectation, but so also has the size of claims paid and the judgments rendered. During the past 10 years settlements and judgments toward and in the 6 figures are no longer a rarity. A recent decision of the California courts for a patient suffering from a Chloromycetin® toxic reaction awarded the plaintiff $337,000 in damages. Other unusually high settlements have been made and judgments have been rendered for malpractice actions in which brain damage resulted for one or other reasons during medical or surgical treatment. The reasons for this rise in malpractice claims are complex and are probably related to many factors. Here are some of the factors:

1. *Public attitude.* Litigation to recover compensation for injury has increased in all types of personal injury actions, including malpractice. This is doubtless due to the increasing sophistication of the public in courtroom procedure and the fact that the public not only hopes but expects a monetary reward for injury. For malpractice actions the problem is compounded. The public, through news and magazine media, has been led to expect wondrous results from medical and surgical treatment but has not been made aware by these writers of the serious and unexpected complications that sometimes result. Consequently, an untoward result may lead the patient to believe that his physician has been negligent.

2. *Juries.* I know that you are all aware that juries have tended to increase the size of judgments in all types of personal injury claims. Juries know that almost everyone is covered by insurance and tend to be very generous with an insurance company's funds.

3. *Inflation.* With all other costs in our economy going up, the size of judgments awarded and the cost of claims settled tend to increase in proportion to the decrease in value of the dollar.

4. *Attorneys.* Plaintiff's attorneys, through their professional organizations, with increasing emphasis on medicolegal training and training in improved methods of trial technique, are becoming more proficient in pressing their clients' suits.

5. *Increasing Hazards of Medicine and Surgery.* The practice of medicine and surgery is becoming more complicated each year. While more lives are saved, it must be realized that more extensive surgery, more potent medicines, and increasingly hazardous diagnostic procedures can also cause serious complications and irreparable damage.

6. *Courts.* A series of evolutionary court decisions have tended to lead to liability without fault for the physician defendant. The courts have done this by extending doctrines which tend to

favor the plaintiff patient against the defendant physician. An outstanding example of this is the extension of the *res ipsa loquitur* doctrine well beyond the originally intended use of this point of law. Let us discuss this doctrine, which originated in England a hundred years ago.

Res Ipsa Loquitur Doctrine

It appears that while a person was walking on the sidewalk of the defendant's warehouse a barrel rolled out of the window and struck him, causing serious injuries. The plaintiff could present no proof as to what caused the barrel to fall, and the trial court dismissed the case on the grounds that there was no evidence of negligence on the part of the warehouse owner. However, the plaintiff appealed and won his case. The appellate judge said "*res ipsa loquitur*," the thing speaks for itself. He brought out the point that the barrel was in the custody of the defendant and his agents who were responsible for control of the barrel, and the simple fact that the barrel rolled out of the window was obviously evidence of negligence on the part of the defendant or his agents. This became known as the *res ipsa loquitur* doctrine, and the principle was thereafter applied in negligence cases where facts pointing to negligence were obvious. From time to time the doctrine was applied in malpractice suits. For instance, if a physician operated for gangrene of a leg but inadvertently and negligently removed the good leg, the doctrine was applied. Another example for application of the doctrine was in the operation of thoracoplasty where the surgeon might negligently operate on the nondiseased side of the chest. In such examples the use of the *res ipsa loquitur* doctrine was logical and could not be challenged since even a layman knew that a surgeon should operate upon the diseased part of the body.

However, in 1944 the case of Ybarra versus Spangard introduced the first clear expansion of the *res ipsa loquitur* doctrine in California malpractice law. It seems that Mr. Ybarra awoke from anesthesia, following an appendectomy, to find that his arm was paralyzed. The California State Supreme Court said: "We have here no problem of negligence of treatment, but of distinct injury to a healthy part of the body not the subject of treatment, nor within the area covered by the operation. . . . Such circumstances raise the inference of negligence, and call upon the defendant to explain the unusual result."

The doctrine was further expanded in 1955 in the Senaris versus Haas case. In this instance a woman developed a paraplegia the day after she had been given a spinal anesthesia in connection with the birth of her child. The trial court dismissed the case since there was no evidence of negligence on the part of the doctors; but on appeal, the appellate court reversed the trial court, holding that "It is a matter of common knowledge that a woman does not ordinarily become paralyzed following childbirth after having a spinal anesthetic administered. . . ." The court further stated evidence was present for the *res ipsa loquitur* rule since the patient had suffered injuries that "are not such as usually occur under the circumstances without negligence on the part of someone."

Finally, how far the California courts have gone in assuming that a layman can pass judgment on medical questions without help from medical witnesses is shown by the quotation from the court decision in the Bauer versus Otis case.

Informed Consent

Let us now turn to another problem recently presented to us by the courts, namely, the problem of the informed consent. In the past it was generally necessary only to obtain a simple consent from a patient prior to embarking upon a medical or surgical procedure, in which he essentially acknowledged that he accepted the performance of this procedure. Several high courts, upon review of appeals from the lower courts, now say that the physician owes it as a duty to his patient to make a reasonable disclosure of the risks involved so that the patient can arrive at an intelligent and informed decision. Failure on the part of the physician to do this, the courts further note, constitutes malpractice in his community.

This brings up certain difficulties for the physician, since the courts did not specifically define what they meant by an informed consent. Must a physician lay before the patient a complete monograph on his procedure? Must he tell him of 100 per cent of complications? Of 80 per cent? Of 50 per cent? Or must he tell him about the major hazards only and skip the minor ones? With investigative work the problem is compounded. For those of you who are doing such investigation dealing with patients, I can only emphasize the serious issues with which you are presently faced in embarking upon clinical research.

Statute of Limitations

Let us now discuss the problems connected with the Statute of Limitations. State Legislatures have enacted laws, known as Statute of Limitations, which limit the time within which a person may commence legal action for personal injuries, breach of contract, etc. against the defendant. Applied to medical malpractice, these statutes define the time period within which a patient may sue a physician for a professional misconduct or negligence. The problem is that the provisions of Statute of Limitations vary from state to state, not only as to the length of time allowed to bring legal action, but also as to when the time begins to run, factors that prevent the time from running, types of legal action covered, and so forth. In some states the length of time is relatively short, while in other states the length of time in which a patient is permitted to sue may, under certain circumstances, be extended to many years after the alleged act of malpractice. Indeed, a physician, or more properly his estate, may be sued for malpractice after his death.

Professional Factors

Let us now discuss certain other factors related to the incidence of malpractice and which, to a certain extent, are under the control of the physician in contrast to those factors which I have previously discussed and over which the physician has little or no control. These factors deal with the medical care rendered and with the patient-physician relationship.

Our California studies[1, 2] during the 1950's reveal that the age of the physician, the sex of the physician, whether he does general practice or a specialty, and the type of area in which he practices (that is, rural versus urban) play little or no role.

TABLE 1: Division of Malpractice Claims: General Practitioners Versus Specialists

	Doctors Insured Per cent	No. of Cases Per cent	Cost of Cases Per cent
General Practitioners	41.9	43.4	40.9
Specialists	58.1	56.6	59.1
	100.0	100.0	100.0

I am sure that many of you will challenge my statement that whether a physician is a general practitioner or a specialist plays no role. An analysis of our California experience for the period 1955–57 is presented in table 1. You will note, concerning the number of doctors insured, that 41.9 per cent were general practitioners and 58.1 per cent were specialists. Whether one analyzes by the number of cases or by the costs of these cases to the insurance company monitoring the group program, there is no significant difference between the malpractice hazard for the general practitioner and the specialist. Indeed, if one further breaks down the specialists into an American Board-certified group and a noncertified group, it can likewise be demonstrated that there is no significant difference in malpractice hazard between these 2 subgroups.

Actually, we found that the most important professional factor was simply that related to the type of medical work which the doctor performed upon the patient.

Table 2 shows the distribution of claims by the type of medical problem. These facts again come from our experience in California between 1955 and 1957. You will note that the facts are presented in 2 columns. The first column relates to the number of claims by per cent, and the second column indicates the actual cost of handling and settling the claims.

TABLE 2: Distribution of Malpractice Claims by Type of Medical Problem

	Per cent Claims	Per cent Cost
Medical	16.0	19.4
Surgical	61.7	69.5
Radiologic	3.1	3.0
Equipment	2.8	0.7
Blood transfusions	1.2	1.8
Other*	15.2	5.6
	100.0	100.0

* Falls, assault, undue familiarity, operative consent, identification, confidential relations, etc.

Medical cases contribute approximately one-fifth of the total number of malpractice claims. These claims are made up principally of toxic drug reactions, neuropsychiatric incidents, and pediatric problems. In contrast, you will note that two-thirds of the cases—and costs—are assigned to the surgical field. This does not mean that the doctor doing surgical work is more careless or negligent than other physicians; it only indicates that surgical procedures are hazardous. If one breaks down the field of surgery into its component subspecialties, it is found that obstetrics and gynecology leads in the field with orthopedics a very close second. Following this, general surgery comes in as a third subgroup, and then follow the other surgical subspecialties.

Radiologic incidents account for less than 5 per cent of claims in our studies. There then follow equipment failures, such as burns from diathermy, the Bovie unit, and so forth, in which the percentage of claims approaches the number of radiologic claims. However, the cost of settling these claims is considerably less, accounting for less than 1 per cent of all costs. Another problem, but relatively insignificant, is that of blood transfusion reactions which account for less than 2 per cent. We then follow with a miscellaneous group of incidents identified in this table as "Other." This group is made up of falls from tables, allegations of assault and undue familiarity, failure to obtain proper consent, identification errors, violation of confidential relations, and so forth.

You should also know that 75 per cent of all malpractice claims originate with work done in the hospital. This is, of course, not surprising, since the hospital is where the physician carries out his major surgery.

Patient-Physician Relationship Factors

Another point worthy of note is that within any malpractice group insurance program there is a certain group of physicians who have multiple claims or suits levied against them and who appear to be "malpractice prone." As an example, in one of the large County Medical Associations in California with a large membership there were 14 physicians who constituted only 1 per cent of the membership, but this 1 per cent accounted for 24 per cent of the indemnity and expenses paid out by the insurance company for its malpractice claims.

This last point, that of the malpractice-prone physician, brought us to consider other factors related to malpractice. It seemed to us that the patient-physician relationship was important; otherwise, how could one explain these multiple suits against certain doctors and also the fact that many claims without merit are brought against physicians? In addition, it has been said that there are cases of malpractice in which the patient does not sue the physician. And finally, it was likewise clear that what made the patient likely to sue or the doctor likely to be sued had very little to do in the majority of instances with the patient's medical care or with the doctor's skill, training, or competence. Consequently, we concluded that the malpractice suit was basically a breakdown of the patient-physician relationship.

Accordingly, a well-controlled study was initiated throughout northern California under the auspices of the California Medical Association, utilizing patients who had sued a doctor and contrasting them with patients who had been under similar types of care but who had never sued a physician or placed a claim for malpractice. Similarly, doctors who had multiple malpractice claims were contrasted with doctors who had never been charged with malpractice. The studies were carried out under the direction of Dr. Richard Blum, a research psychologist. The findings were extraordinarily interesting, but the conclusions to be drawn remain controversial, primarily since these were exploratory and early studies. Here is what we found.

The studies demonstrated that the patient likely to sue a doctor had certain personality characteristics and fell into a group which we termed the unrealistic or unreasonable person on the basis of his personality profile. These patients were generally immature, suspicious, dependent, dogmatic, and prejudiced, and had little self-esteem. They denied or did not understand their own emotions and were generally low in intelligence. They thought that everything should be curable—they wanted their doctors to be omnipotent. They were dissatisfied with their doctors, changed doctors frequently, and visited doctors often. They believed that they did not get well fast enough, and they blamed the doctor for their seemingly slow recovery. They were suspicious of organized medicine and distrusted doctors as a group. They thought that hospital nurses neglected them, and they were afraid of illness. They were preoccupied with money, thought that doctors and hospitals charged too much, were suit-conscious, did not dislike people who sued, and used money as a means of expressing their feelings.

Now, there was no evidence that these suit-prone people were crooked, dishonest, or amoral. Indeed, because of their dependent admiration of doctors they found it difficult to sue. But they did fail to take appropriate responsibility for their own care, and their unrealistic expectations of doctors and medicine rendered them particularly susceptible to disappointment. Further, it was a disappointment of a sort that they could not entirely accept the damage as part of their own doing and they therefore blamed others.

This self-protecting device expresses itself best in the suit-prone patient's history of changing doctors, his complaints of slow recovery, and his trick of always finding fault in so many medical situations. This type of patient leans unrealistically on his doctor, and he wants the doctor to have Godlike powers, but he simultaneously distrusts what the doctor can do for him. He focuses on his own problem in a self-centered way and is unable to see the problems of others. The fear of illness, coupled with the desire for a scapegoat, inclines him to blame the doctor if anything, imagined or actual, goes wrong. He is quick to seize upon an event to brand the doctor as incompetent, but it is not possible for him, because of his blindness to his own emotional needs, to talk the matter over with the doctor. His inner rage finds no outlet except in complaint to family and friends, who obviously are likely to agree with him, and this adds to the anger directed at the doctor.

Now, what did our studies show of the doctors who are malpractice-prone? These studies indicated that doctors who were repeatedly sued showed certain interesting characteristics for the group. This type of physician is dependent upon his patients, and yet he cannot attain a close friendship with them. He tries to do too much by himself and yet is likely to blame others if anything goes wrong. He dislikes his patients but yet cannot do without them. It is because of such inner conflicts that the suit-prone doctor cannot deal effectively with the difficult emotional problems generated by his own immature relationships with suit-prone patients when complications occur. It is difficult for him to see or understand his problems; consequently, it becomes difficult for him to admit to anger, error, or lack of insight.

In these studies I believe that we have demonstrated in general that it is a certain type of patient, under treatment by a certain type of doctor, who frequently sues as a means of expressing his anger toward the doctor. If the patient and doctor can handle the problem satisfactorily there is little chance that a suit will develop. However, given the suit-engendering situation, it is usually the patient who discovers what he deems to have been malpractice and it is the patient who decides to sue. He usually does so without telling the doctor by delivering his complaint to an attorney. In such cases, probably considerably less than half, does the attorney recommend action, and when he does and if it is with merit it is usually settled out of court. The cases that do get into court—and these are presumably the unwarranted cases—are almost always won by the doctor. Our California experience indicates that in such cases well over 90 per cent are won by the defendant doctor in court.

Patients who are likely to sue can usually be identified by their unrealistic outlook upon life and their attitude toward illness, medicine, and doctors. It is part of our task as doctors to be competent in recognizing such people. Such patients should be told what to expect in treatment, and what the fees will be. They definitely should be forewarned of possible problems or risks, and serious or dangerous treatment should not be undertaken without being certain that the patient understands the possible consequences. Also, we should be sure that before treatment is started the patient commits himself for being responsible for the decision to undergo such treatment.

Also, we should permit our patient to talk out his worries in a friendly and respectful atmosphere which we can provide for him. We should use consent forms, and make free use of professional consultation to confirm our thoughts in problem cases. Needless to say, we should keep careful medical records.

Now, what should we do when we become aware that an event has occurred that the patient might construe as medical malpractice? Our first concern should be for the feelings of the patient. We should immediately discuss the matter with the patient and even sometimes with the patient's family. We must learn to expect and accept the anger and fear which the patient may feel and which he may heap upon us. But we should also realize that our patient will be helped by our feeling of sympathy for him.

Medicolegal Education

A final point worthy of discussion is the place of the attorney in malpractice suits. You should all know, if you do not already realize it, that the attorney who specializes in malpractice suits does not have a high opinion of organized medicine, which he sees as a coercive and self-protecting trust, uninterested in the rights of patients. It is here that closer coöperation between lawyers and doctors would be effective in changing these ideas.

Much can be done by close coöperation between the local Bar and Medical Associations. The Medical Association should lead in furnishing assistance in expert medical testimony from its physician-members in malpractice cases in which the plaintiff may have a bona fide case. This is, of course, easier said than done, since the physician's unwillingness to testify extends not only to malpractice but also to personal injury cases. This is because he is trained as a scientist to present medical data and conclusions in a narrative and factual manner, and to elaborate on the pros and cons of the medical problem. Because of the adversary system of trial in the United States this is not generally possible. Under such a system the physician replies to a series of questions which, when put by an experienced trial attorney, may modify, twist and distort the true medical story.

Here is where education of physicians is sorely needed. They should be taught the basic elements of law as it pertains to their medical practice. They ought to know courtroom procedure and understand the principles of cross-examination. But, unfortunately, few medical societies have the interest or inclination to set up such education.

Prevention of Malpractice

Dr. Richard Ford,[3] a Massachusetts physician and a member of the Harvard Medical School faculty, said in 1950: "The prevention of medical malpractice depends upon 3 points: good faith, good records, and common sense. Good faith implies that the physician treat his patient with tact and kindness, that he conceal no known difficulty in diagnosis or treatment, and that he advise consultation freely. Good records require that the physician adequately document the medical records of his patient, carefully record untoward happenings, and make a matter of record the treatment given and the advice offered. Common sense implies that the doctor know the vindictiveness of some patients, recognize the hazard connected with the collection of reluctant fees, be aware of the failure of equipment that in turn can produce injury, and use only well established medications and surgical procedures."

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Maternal Immunologic Tolerance—Breyere

(*Continued from page 96*)

tus. Tolerance was specific as it depended upon a genetic concordance between the fetus and subsequent test homograft of either normal or neoplastic tissues. In addition, it increased with multiparity, and the tolerance induced to individual transplantation antigens was complete and permanent. The possible relationship of this general phenomenon to various clinical observations is emphasized. Maternal tolerance may explain the prolonged survival of tissues transplanted from children to their mothers and why tumors of trophoblastic origin, which are derived from the fetus, may not be affected by the mechanisms of homograft rejection. The possible application of findings resulting from studies on maternal tolerance as related to the transplantation of normal tissues and related phenomena is also discussed.

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Where Are We Going in Medical Practice?*

EDWIN P. JORDAN, M.D.

Executive Director, American Association of Medical Clinics, Charlottesville, Virginia

YEARS AGO a wise and distinguished professional historian remarked to me that one trouble with many people was that they lost sight of the continuity of history. For our purposes, as well as for others, this means, I think, that the patterns of the past are never suddenly altered but that if properly interpreted they may shed considerable light on what is happening in the present as well as what may occur in the future. And this thought may be extended, perhaps, to the behavior of human beings whose faces will change by the relentless passage of time but who continue to behave in very much the same ways as their ancestors.

It may be properly asked what has occurred to engender such discussions as those held this morning and those which will be held this afternoon. One factor, it seems certain, is the result of the increased crowding of our continent—and indeed planet—with human beings. This may be likened to compressing the same number of atoms into an ever smaller space with the inevitable result of a growing number of collisions. Not only does the human individual have less free space in which to maneuver, but society attempts to protect him from being crushed by others (rights of the minority) and punishes him for interfering with the rights of others. These three trends continue and lead to increasing restriction on the freedom of action of each and every one of us.

But we should explore what special factors are influencing and will influence our own field of endeavor. It seems to me that the remarkable scientific and technical developments of the past half century or so have played the predominating role. Preventive measures alone have altered medical practice remarkably; typhoid, diphtheria, lobar pneumonia and even tuberculosis are diseases which virtually have disappeared. Not so long ago these constituted much of the "bread and butter" of the physician's practice. Other diseases, now common, will doubtless follow the same road.

Diagnostic procedures have multiplied, many have become more complex, the significance of some has changed, and overall they have become more expensive.

Therapy has undergone its own revolution. The possibilities for surgery have been enormously extended. For example, one need mention only cardiovascular, thoracic, plastic and neurologic surgery, to illustrate the trend.

In the drug field also there have been more changes in the last 50 years than in all previous history. Few of the drugs widely used only some 30 years ago are now employed at all. For example, I recently noticed that the heavily laden tray of an ophthalmologist did not even have Argyrol® on it—this staple of the relatively recent past. Most new therapeutic developments have proved more expensive than the less effective therapy of the past, and this fact has, of course, exerted profound effects on medical practice.

Scientific and technologic changes in medical practice have been accompanied by—indeed, they are probably the cause of—a great increase in specialization among physicians. It is erroneous, I believe, to assign responsibility for this change to the desire on the part of physicians to seek a higher status, an easier life, more money, or to blame the medical schools for not encouraging more students to embark on general or family practice. The forces which have led to increasing specialization seem to be primarily the result of scientific advances of medicine and the desire of physicians to master at least one field where so much knowledge is available. I really cannot see any merit in the continuing debate on specialization versus general practice. The areas of general practice, as well as those of specialization, have changed and will change further in the future. There is ample room in our profession for any conscientious physician who confines his efforts within his area of competence, and there are many family physicians as well as specialists who do just this.

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* Presented at the Annual Luncheon of the Medical Society of the District of Columbia, November 19, 1963, during its 31st ANNUAL SCIENTIFIC ASSEMBLY at the Hotel Statler-Hilton in Washington, D. C.

It is my opinion that the increased crowding of our society together with the scientific and technical developments of medicine just referred to are responsible in the main for the current debate on the financial and economic aspects of medical care both for the present and the future. Among the many problems in this field I can mention only a few.

First, the increased use of hospitals has been a remarkable phenomenon. From a place to go for a terminal illness or to acquire one the hospital has changed into an institution with the insides of which almost all are now familiar. As an illustration, if there are any in this audience old enough to have been born prior to 1910 the chances are they were born in a home; almost all of those born in this country since that time were born in a hospital. This has resulted in much greater safety for both mother and child, but it has also increased the cost of having a child. Indeed, hospitalization has become so common now—and made so attractive by some of the quirks of our insurance mechanisms—that all the evidence I have seen suggests that some of this costly hospitalization is unnecessary for medical reasons alone. If this is true it is a problem of high priority which should receive concentrated study in the light of its present and future effects on the economics of medical care.

The economics of health care, although its present status had its roots in the friendly societies of the last century, has been radically altered in recent years by the various plans for sharing the costs of medical and hospital care through insurance, consumer-sponsored plans, or by other means too numerous and complex even to mention now. Essentially this development has meant that most patients who fall ill no longer personally pay their own costs for medical and hospital care directly but that these are so spread that some will pay for more than they receive and others will pay less. In view of the heavy costs of many diseases and accidents and their unpredictability for the individual, this development would seem to have been inevitable. However, the final answer on the best method, if there is a single "best," of accomplishing the desired objectives is still both debatable and elusive.

The scientific and technical advances in medicine seem to me to have had an effect on, and probably are responsible for, the increased role of Government at all levels in the medical picture. At the Federal level the most noteworthy changes recently have been the increased support of medical research and education, increased control over development and the use of drugs, support for hospital construction, and much pulling and hauling over the part which the Federal Government should play in medical practice.

It is often forgotten that state, county and city activities in the health field are also considerable. At the state level Public Health Departments have many responsibilities; most states maintain hospitals for the care of the mentally ill and the tuberculous and support the medical care of patients in such institutions. At the county or city level there are likewise important responsibilities for the Public Health Departments, and many support local hospitals. It is probable that the reason state and local activities in the health field are not receiving more attention is because they have not changed greatly from the patterns of the past or expanded in recent years as have those at the Federal level.

Certainly there have been many changes in the medical schools and in medical education, and I do not refer to curricular ones only. One problem, for example, relates to the full-time medical school physician-teacher and the method by which he is supported or supports himself. Sometimes conflicts have arisen here because of competition with former students practicing outside the academic fold. This too has not been resolved, and one can only hope that it gets better before it gets worse.

What are some of the effects of these scientific and economic developments on the method of practice of physicians? They are undoubtedly at least partially responsible for increasing specialization with a concomitant decrease in the percentage of physicians in so-called general or family practice. Time forbids a discussion of the reasons for, or the advantages and disadvantages of, this development, but as yet there is no sign of change in this trend of the past 40 years or so. Probably the same causes are responsible also for the growth of various types of group practice, including the multiple-specialty clinic, the so-called mixed group of specialists and family practitioners, and in the cities groups of specialists in the same field of practice. There are many other variants. Group practice has not yet been frozen into clear-cut patterns, but the number of physicians in some form of group practice appears to be increasing at roughly 10 per cent per year.

I should like to say a few words about one change which seems to be passing relatively unnoticed and which, I think, will become increasingly important in many parts of the country.

This might be called the geographic-transportation change. Before the days of the automobile and the paved highway—and indeed the helicopter and the airplane—it was believed necessary to have a physician within a few miles of every patient. Today most patients 25 miles from the nearest physician or hospital are as close or closer together in time than were our ancestors 3 miles away from the doctor over muddy roads. Thus the transportation of the patient to the doctor or the hospital or of the doctor to the patient over considerable distances is common now and will probably increase greatly in the future. That this has, and will have, an influence on the numbers of physicians needed, where they should locate, and what fields of practice they should follow can scarcely be doubted. Many of the implications of this change appear to have escaped careful analysis.

What are the reasonable expectations for medical practice? Barring a catastrophe such as a major war or natural disaster, when I presume about everything would be Government-directed, it seems almost certain that there will be continuation of scientific and technical advances and rather large-scale experimentation in the economic field, some of it characterized by considerable acrimony. Advances in the science and technology of medicine should be, and probably will be made rapidly available to all. Any interference with new advances or their application by unwise or overhasty legislation or other impediments must be opposed by all means in our power. So far as medical practice is concerned, the variations in geography, population concentration, and other differences on this vast continent seem to me to indicate that it will be impossible to develop any single pattern of providing medical care without introducing great risks for some segments of the population while aiming to improve the situation for others.

I should like to plead for several things which I believe we need badly. There is need for expanded experimentation, both scientific and economic. When one does not know the answers this is the only sound way of making progress. There is need to control the dominance and power of any single element in society as far as medical practice is concerned. The title of this morning's discussion clearly points to this need. There is need for increased coöperation among all those interested in medical care with the maximum retention of freedom of the individual. Should this need fail to be met we run great risks of mass frustration.

I should like to say a few words about planning. We plan scientific experiments, and there is no reason why experiments should not be employed in the forms of medical practice or in economics as related to health. As A. A. Berle, Jr., says in his book, "Power Without Property," "The principle of planning cannot be said to be repugnant to American political practice." However, a planned experiment does not always come out as expected in the scientific field; perhaps too often the fact that this is true also in economic planning is lost sight of by some who confuse the planning of an experiment with its successful outcome.

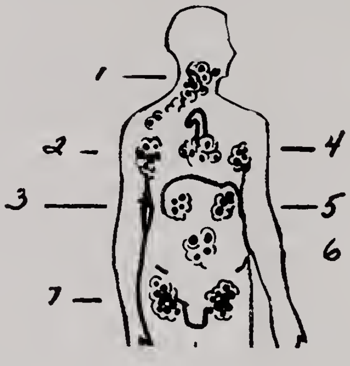
Thus there are, I think, too many advocates and opponents and not enough experimenters when it comes to planning for economic changes in the health field or in the forms of medical practice. This seems to me particularly unfortunate in view of the many different laboratories available to us in the 50 states of the Union, not to mention their innumerable subdivisions. I believe that we could, if we wished, conduct many more controlled experiments, both in the economics of health care and in the methods of medical practice best suited to fulfill particular needs. Indeed, many such experiments are in being, though many of them lack the elements of control which we apply to our scientific endeavors. Their results are prejudged too often—and often with emotional bias—rather than being subjected to cold and impartial analysis.

Finally, I believe that the patterns of medical practice are likely to change slowly by evolution rather than radically by revolution. Probably much of what happens will result from such factors as changes in the numbers of people served by the health professions, their geographic location, their age distribution, and the diseases to which they are subject, all of which are largely beyond our control. I do not mean to imply that we shall not have any influence on our destiny, since we in medicine surely have, or should have, a better understanding of the factors involved than anyone else and should be able to take the lead in flexible adjustment to changing circumstances.

We can surely expect changes in medical practice, but exactly what they will be we cannot tell. We can probably count on the changes making some happy and some unhappy. It is virtually certain that the changes which do occur will fall short of the expectations of those who favor them and prove less disastrous than anticipated by those in opposition.

Doctor, remember:

Careful examination of lymph nodal areas is important in the early detection of Malignant Lymphoma.



1 – Cervical
2 – Axillary
3 – Epitrochlear
4 – Mediastinal
5 – Retroperitoneal
6 – Mesenteric
7 – Inguinal

Lymphoma is found in **all** age groups and is often accompanied by splenomegaly, hepatomegaly, fever and anemia.

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PRESIDENT'S PAGE

AN "EYE OPENER"

I had my first real indoctrination into the full ramifications of this Society's activities at a recent meeting of Committee Chairmen. After several years as a member and chairman of various committees, I believed my knowledge of our work here in the Medical Society of the District of Columbia was quite substantial. Let it be said here and now the error was and is mine.

On Saturday afternoon, February 8, 34 Committee Chairmen, our President-elect, Paul Wilner, and the Executive Director were kind enough to give up their recreational pleasantries and meet with me at the Kenwood Country Club. Ostensibly our purpose was to discuss an idea I had put to paper on the how, where, when, and why of committee work so that all would know how the committees function, when to meet and make reports, and what activities they might cover. This we did in a brief span of a half hour, and each committee member will receive a copy of these so-called "instructions."

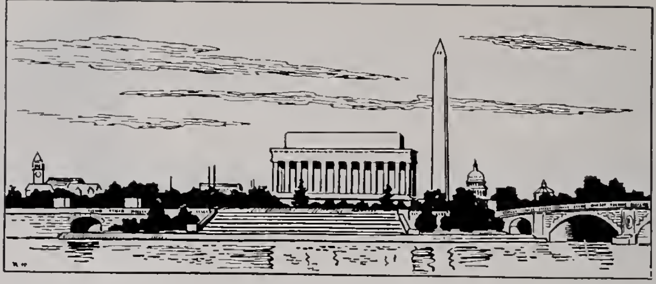
Then I asked for a report from each Committee Chairman—from Jack Kleh on Aging to Herbert Gates on Traffic. Well, I learned more about the D. C. Medical Society's activities than I ever dreamed. Chairman after Chairman "laid it on the line"—past, present, and hoped-for future. In my January President's Page I said, "The committees of a Medical Society are essential to its operation. It is here that many policies originate and are threshed out. It is here, too, that the Society's day-to-day business, other than administrative work, is conducted."

On February 8 I learned that I was 100 per cent right, a rare occasion for me. Members of these Committees (sure, we have a lot of them) and their Chairmen put far more time and effort into making the private practice of medicine a reality than most of us realize. They aren't giving up their noon hours and evenings for themselves but for all of us—for you, for me, and for those who will succeed us.

Now I've heard a lot of criticism about the hierarchy in medicine, complaints about the dues, and questions as to what are you doing about this and that. In fact, over 300 members are on committees. But from now on I can say firsthand that the hierarchy listens to the committees, and the committees to our members. They listen and act for the best interest of the profession as a whole and for your patients as an aggregate. As for our dues, I'm surprised when I talk with officers of other societies whose range of activities far surpasses ours, because they have realistic dues considerably higher than ours. Dues-income finances committee activities, which in turn make the Society potent or impotent. If committees are going to do things well, they must have financial support.

My hat's off to our present Chairmen; it will be a pleasure to serve with them.

Edward W. Kicklas



EDITORIALS

PHS Report on Smoking and Cancer

"The death rate for smokers of cigarettes only . . . is about 70 per cent higher than that for nonsmokers."

"Cigarette smoking is causally related to lung cancer in men; the magnitude of the effect of cigarette smoking far outweighs all other factors. The risk of developing lung cancer increases with duration of smoking and the number of cigarettes smoked per day, and is diminished by discontinuing smoking."

"Cigarette smoking is the most important of the causes of chronic bronchitis in the United States, and increases the risk of dying from chronic bronchitis."

"A relationship exists between pulmonary emphysema and cigarette smoking, but it has not been established that the relationship is causal."

"Male cigarette smokers have a higher death rate from coronary artery disease than nonsmoking males, but it is not clear that the association has causal significance."

These are the principal conclusions in the Report of the Advisory Committee to the Surgeon General of the Public Health Service. This exhaustive study is now in the hands of all physicians. Such a publication must end the era of doubt and indecision concerning tobacco and health. No longer can an intelligent person question individual reports or ask for more data. Hundreds of reports on all aspects and from all sources have been carefully analyzed and precise conclusions stated. This report must be studied by the medical profession from several standpoints. As a physician he has an obligation to assimilate new knowledge and apply it to the benefit of his patients. If the physician is male and the head of a household he has other obligations. His health is important to himself and the family is dependent upon him. He must guide his children in health matters while continuing to provide for their more material needs.

Some physicians who are smokers will study the report, accept the conclusions, and stop smoking. This is laudable but is not sufficient. The previous generation who decided that "summer diarrhea" was in fact due to polluted water did not merely avoid the water. They attacked the problem at its source by legislative and civic action. It is not enough that we stop smoking. We must object to those who continue to smoke. We must make advertising truthful and stop the seduction of our teenage children. Our hospitals, institutions devoted to the care of the patient with lung cancer or heart disease, must stop selling the very products which cause or contribute to this condition.

There are those physicians who will read this report and continue to smoke. This is a personal decision which does not relieve him of his obligation to lead and educate the public. If smoke he must, it must be in private. The physician who smokes in public encourages the public to smoke. Patients will not shun a health hazard which his physician uses.

There is yet another aspect to this problem. The public is well aware of the Surgeon General's study and its conclusions. The American patient expects his doctor to treat him with the most modern methods and drugs. How will he regard a doctor who cannot or does not regulate his personal life to conform with the most advanced scientific knowledge?

George William Ware, M.D.

Opinions expressed in contributions to the Editorial Section are those of the writers and do not necessarily reflect the views of the Medical Society of the District of Columbia

AMA President Queries Labor on King-Anderson Bill

The President of the American Medical Association, Dr. Edward R. Annis, was honored by the D. C. Medical Society at a reception and cocktail party at the Hotel Statler-Hilton, Sunday afternoon, January 19. About 250 physicians, many with their wives, were in attendance to hear Dr. Annis speak briefly on the implications of the King-Anderson Bill, which was scheduled for a hearing before the House Ways and Means Committee the following week. Dr. Edward W. Nicklas, President of the D. C. Medical Society, introduced the speaker.

Dr. Annis posed some questions to officials of the AFL-CIO and other labor organizations.

"Although you know the truth, why do you keep telling union members that Medicare is a program that would let them contribute while working to a fund that would be set aside for their benefit in old age? Why do you continue this deception when you know that not one dime of the taxes union members and other workers would be forced to pay would be set aside for their future, that every dime they would be compelled to pay would be used immediately for hospital bills of people already 65, the wealthy included?

"Although you know the truth, why do you keep telling union members that Medicare would be an insurance program? Why do you persist in this fiction when you know that the United States Supreme Court in major decisions has declared that Social Security is strictly a tax program, not insurance?

"Although you know the truth, why do you tell your union members that Medicare would cost them only about a dollar a month? Why this deception when the cost to the $100-a-week employee in direct taxes the first year alone would be at least 235 per cent more than that and taxes would have to be increased every few years, as disclosed in testimony by the chief actuary of the Social Security Administration?

"Why do labor leaders support this kind of injustice to their members, knowing that the burden of paying for Medicare would fall on lower-income wage earners, on their own union members?

"Why do labor leaders insist on a soak-the-worker payroll tax to finance Medicare, when they know that with the payroll tax, the $5,200-a-year union member would pay just as much as the $25,000-a-year union official. Is this why the high-income union officials insist on a payroll tax for Medicare—to protect their income at the expense of their own union members and other lower-income wage earners?

"Or is it because they want to shift more welfare burdens to the taxpayers to protect the gigantic union welfare funds which now total 60 billion dollars, nearly two-thirds as big as the annual budget of the Federal Government and 3 times as big as the reserve fund of the Social Security System?

"Or is it because they are more interested in personal power than the welfare of the union members they are supposed to represent?"

For many union members and a lot of other wage-earners, Dr. Annis pointed out, the increased taxes for Medicare would wipe out the saving they would get from the Administration's proposal to reduce income taxes.

Postgraduate Nutrition Education*

Nutrition is integral to the total management of the patient, yet the practicing physician has not availed himself of the vast amount of knowledge on nutrition in his daily practice. There are many reasons for this. The chief one is the lack of planned and properly coördinated education in clinical nutrition in medical schools.

"Some of the basic concepts of nutrition are presented in the various preclinical departments of the medical schools, such as biochemistry and physiology," the Conference on Nutrition Teaching in Medical Schools found.

"In the clinical departments and subspecialties of medicine there has been insufficient correlation of the subject matter, so that the student does not have a precise grasp of the fundamentals of nutrition and is, therefore, not able to apply modern nutritional concepts." Then, too, the literature has been scattered through the journals of a score of unrelated fields of knowledge and much research has been reported in technical publications with which the practicing physician is completely unfamiliar.

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* Reprinted by permission from Penn. Med. J., 1963, 66, 71.

To fill the void in the area of postgraduate education in clinical nutrition, the Philadelphia County Medical Society and the State Society 5 years ago initiated a grass-roots nutrition education program among physicians in Pennsylvania and surrounding areas. The program was conducted by the County Society's Committee on Nutrition and Metabolism and the Commission on Metabolism and Cardiovascular Disease (formerly the Commission on Nutrition) of the Pennsylvania Medical Society. It is significant to note that only 5 state medical societies and 26 county societies (18 in Pennsylvania) have conducted nutrition programs, according to the American Medical Association Council on Food and Nutrition in a 1961 survey.

Our program was conducted with excellent support and coöperation from the National Vitamin Foundation in New York, a nonprofit organization formed by the drug industry to support basic research and education in nutrition.

Because it is felt that our experience may be of interest to many readers of the *Journal*, the following is a brief summary of our Nutrition Education Program.

Methods

A panel of more than 50 nationally known physicians who are also oriented in the basic and clinical phases of nutrition was recruited to fulfill speaking engagements. This provided an opportunity for experienced clinicians to exchange with practicing physicians information on the newer concepts of nutrition as applied to the total care of the patient.

To implement the program various means have been utilized, such as individual lectures, symposia, panel discussions, a 1-day institute of nutrition, and presentation of discussions on nutrition at regularly scheduled hospital staff meetings. Other organizations, such as chapters of the American Academy of General Practice, state and county medical societies, food and nutrition councils, and county dental societies also coöperated.

In addition to formal lectures on nutrition, detailed discussions during ward rounds of individual patients presenting nutritional problems were utilized to emphasize the responsibility of the physician for dietary treatment together with close observation of the patient's nutritional deficits and response to the nutritional therapy ordered.

Topics

Since nutrition permeates every field of medicine, a large variety of specific medical and dental problems of current concern to the practitioner have been offered, e.g., obesity, cardiovascular disease, gastrointestinal disorders, diabetes mellitus, alcoholism, hematologic disorders, surgery, and nutritional problems of pregnancy, infancy, adolescence, and aging.

Acceptance

The Nutrition Education Program has been well received by the profession, and several medical organizations have requested repeat nutrition programs.

Summary

The accumulation of the basic knowledge of nutrition in recent years has made it difficult for physicians to keep abreast of progress. The aim and effort of the Nutrition Education Program have been to close the gap between the basic advances of nutrition and their clinical application by practicing physicians. By reaching the physician with current developments in the field of nutrition he is not only made aware of nutrition as a modality of therapy, but he is better prepared to "counteract faulty diet practices urged upon the public by the faddist."

MICHAEL G. WOHL, M.D.
Chairman, Committee on Nutrition and Metabolism, Philadelphia County Medical Society

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Health Dept. Notes

Tuberculosis Detection and Supervision

WORLD HEALTH DAY on April 7, 1964, will feature the motto, "No Truce for TB." Goals have been set by a task force so that health departments can measure how they meet the standards on case detection and medical supervision of persons on chemotherapy. These goals are:

Case Detection.

1. *X-rays.* A definitive diagnosis will be obtained within 6 months on 75 per cent of X-ray suspects.
2. *Tuberculin reactors.* Ninety per cent of positive reactors to 5 T.U. (5 mm. induration

District of Columbia Statistical Reports for 1963

Births, Deaths and Infant Deaths Reported for 1963 (December 28, 1962–December 26, 1963) Contrasted with Corresponding Data for 1962

	1963			1962		
	Total	White	Nonwhite	Total	White	Nonwhite
Live births	32,762	17,966	14,796	33,781	18,531	15,250
Deaths	10,556	5,890	4,666	10,354	5,966	4,388
Deaths under 1 year	903	382	521	998	431	567
Infant mortality rate*	27.6	21.3	35.2	29.5	23.3	37.2

* Deaths under 1 year per 1,000 live births.

Communicable Diseases Reported for 1963 (December 28, 1962–December 26, 1963)

	Resident Cases		Resident Deaths 1963
	1963	1962	
Brucellosis		1	
Chickenpox*			
Diphtheria	1	1	1
Dysentery, amoebic			
Dysentery, bacillary	104	104	
Influenza*			13
Malaria		1	
Measles	226	679	
Meningococcal infections	8	6	2
Meningitis, aseptic	11	12	
Pneumonia*			457
Poliomyelitis	1	2	
Psittacosis			
Salmonella	124	96	1
Spotted fever	2	2	
Streptoccal infections	72	83	
Tuberculosis	†	†	94‡
Tularemia	1		
Typhoid fever	1	10	
Whooping cough	10	19	

* Chickenpox, influenza and pneumonia reported only in unusual occurrences.

† Data not available.

‡ Includes 20 deaths at Glenn Dale Hospital that were not included in the total deaths.

Murray Grant, M.D., D.P.H.
Director of Public Health

Collaborating Epidemiologist
U. S. Public Health Service

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plus) will be X-rayed within 2 months.

3. *Contacts.* Ninety per cent of close contacts to new active cases will receive an X-ray within 30 days.

Services to Patients.

1. *New Active Cases.* Seventy-five per cent or more will have bacteriologic conversion within 6 months.
2. *Active Patients.* Ninety per cent of all active outpatients will have a medical examination report within the past 3 to 4 months.
3. *Bacteriology.* Eighty per cent of active cases at home will have a report on the case register within each succeeding 6 months' period.

What attainable goals are set for the family doctor? There is a need to set a professional realistic target for the general practitioner, the pediatrician, the internist and the chest specialist. The task is tremendous, but the reward is great.

The Task in D. C.

1. Detection often pays off if the physician plans to skin test sick infants and preschool children routinely.

Goal: Aim to skin test 100 per cent of all sick infants, preschoolers, and adults (ages 25–54). The doctor may find cases of undiscovered tuberculosis meningitis or tuberculosis effusion.

2. One in every 100 admissions to D. C. General Hospital General Pediatric service has tuberculosis. The Glenn Dale Hospital Pediatric service of 50 beds is always filled to capacity.

Goal: Aim to perform a tuberculin skin test on every household or close contact of the new active case of tuberculosis.

The public health law provides that active cases of tuberculosis should be reported. Call National 6-8000, ext. 2391, and leave the information with the TB Control Officer or his secretary. The doctor may uncover 2 new cases for each 100 contacts screened.

3. Detection pays fairly good dividends among healthy infants. The physician may find many previously undiagnosed active cases in adults as a result of positive tuberculin reaction (5 min. indication) in infants.

Goal: Aim to skin test at least 50 per cent of well preschoolers. Each year the D. C. Department of Health finds about 100 new primary active cases among preschoolers.

4. Most of the new active cases of tuberculosis occur between the ages of 25 to 54 years.

Goal: Aim to skin test and X-ray well adults of this age group. If the doctor provides for a chest X-ray without the skin test, he may miss 8 per cent of extrapulmonary tuberculosis.

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(A non-profit organization)

5. If the family physician discovers a new case of pulmonary granuloma, he will want to provide the best medical care. The first problem concerns itself with identifying the etiologic agent. Is the pathology due to *Mycobacterium kansasii, bovis, tuberculosis, avium,* a fungus, other bacteria, viral or metabolic condition? The drug susceptibility test may provide information concerning unclassified mycobacteria. Advances in bacteriology aid in treatment control.

It is recommended that sputum be taken with each X-ray in order to provide adequate supervision. The tuberculosis bacteriology is more important than X-ray for judging activity. The patients need follow-up as frequently as once in every 1 to 3 months after confirmation of diagnosis and hospitalization.

> GOAL: Sputum, X-ray, and medical consultation should be provided at least every 3 months. If your patient misses an appointment, it may be that he lapsed from your supervision. The D. C. Department of Public Health is ready to help find a way to return the patient to your supervision.

Continuity of chemotherapy and chemoprophylaxis is a time-consuming problem that may require up to 18 months of supervision. Resistant organisms follow interrupted therapy.

Check with our Tuberculosis Control Officer. He will advise you concerning current tuberculosis morbidity and mortality rates. He can help you with up-to-date references. Physicians concerned with tuberculosis treatment may be interested to know about the TB Laboratory Workshop which is being planned. Laboratory personnel may wish to participate in this work session, which is scheduled for April 6–8 in Room 5023, Municipal Center, 300 Indiana Avenue, N.W., Washington, D. C.

As the reader may recall, this is the time to sign "No Truce for TB."

MURRAY GRANT, M.D., D.P.H.
D. C. Director of Public Health

Visiting Nurse Service of Fairfax County

THE VISITING NURSE SERVICE of Fairfax County (Virginia), Inc. reports that 1963 was the most active since the organization was established in 1951. Over 5,800 nursing visits were made in 1963, an increase of 17 per cent over the 1962 number of home visits. Age levels of patients served have ranged from newborns to 1 patient whose age was given as 103. The majority of patients are between the ages of 51 and 85. The 1963 caseload, however, has shown a marked increase in patients between the ages of 26 to 50. This latter increase is attributed to the number of patients who required short-term convalescent nursing service following hospital discharge. Various types of chronic illness and invalidism of old age account for nursing visits in the age brackets of 65 and over.

As a voluntary, nonprofit health agency, the VNS of Fairfax County receives no tax money nor Government funds. As one of the 143 member agencies of the United Givers Fund of the National Capital Area, it receives approximately one-half of its operating budget from this single source. Other sources of agency income are payments received for services rendered to patients who purchase nursing service through their own resources or through reimbursement from various insurance plans. In addition, the Cancer Society of Fairfax County has, for many years, provided funds to the VNS for care of indigent cancer patients. Financial contributions from women's clubs, civic organizations, individual gifts and memorials from friends of the VNS make up the additional operating funds for the support and continued operation of the agency.

The increase in utilization of Visiting Nurse services by patients able to pay reflects a Nationwide trend of the past several years. This trend further emphasizes the fact that Visiting Nurse Service is available to all residents of the community including those able to pay. However, in 1963 approximately 60 per cent of the total visits of the Fairfax Visiting Nurse Service were given on a free or part-pay basis.

MRS. MADGE H. LONGLEY
Director

Retirement Plan Offered by AMA

An AMA Retirement Plan has been instituted under the Keogh Law (Public Law 87-792), a Law which allows self-employed persons to participate in tax-deferred retirement programs. As a result, a qualified AMA member who is self-employed can set aside under this Plan up to $2,500, or 10 per cent of his annual earned income, whichever is less. The first 50 per cent of this is tax-deductible.

The physician must be self-employed in the performance of personal services; he may be a solo practitioner or a member of a professional partnership. Nonmember partners are not prevented from joining the Plan provided: (a) that at least 1 other partner is a qualified member of the AMA, and (b) that the partner designated to execute the Plan on behalf of the partnership is a qualified member of the AMA.

The physician who wants to qualify must make contributions to the Plan on behalf of each full-time employee with 3 or more years' service at the same rate as for himself. Therefore, the physician could contribute an amount up to 10 per cent of each qualified employee's yearly compensation. This contribution is entirely tax-deductible. The physician is also permitted to make a voluntary additional contribution to the Plan, limited to the lesser of $2,500 or 10 per cent of wages. The physician may contribute for all of his full-time employees regardless of their length of service. (The law defines a full-time employee as one who works more than 20 hours a week for at least 5 months each year.)

The AMA Plan makes provision for a trustee fund with 2 channels of investment: (1) an equity investment fund, and (2) an insurance annuity. Contributions to the equity portions which purchase units in the investment fund are scrutinized carefully by the Board of Administrators and their advisors before purchase in an effort to achieve capital appreciation. The contributions designated for annuities are placed with selected major insurance companies at a guaranteed interest rate and the participants may also share in any excess profits earned by the insurance carrier.

The Executive Committee of the AMA Board of Trustees has been designated as the Board of Administrators to act as agents of the participants in the Plan. They will instruct the Plan's trustees to purchase and sell securities and other property for the equity fund and will make regular reports to each contributor on the status of his account.

Allocation of a contributor's donation to either portion of the fund is designated by the contributor himself in his application and the proportion to each is also designated by him. Notices will be sent to each participating employer 4 times each year so that contributions may be paid quarterly, to be based upon the participant's quarterly statement as reported to the Internal Revenue Service.

The payment of benefits will be made within a reasonable time upon notice of retirement (but in any event, not earlier than age 59½ or later than age 70½) or upon verification of disability or death. Both the annuity and equity plans will afford payment to the contributor in the form of an annuity or lump sum, or a combination of both, as designated by the contributor.

Advantages of the AMA Plan are that it provides both a variable investment fund and an annuity insurance. The large number of contributions possible through the AMA Plan can provide for diversity of investment, thereby lending safety plus long-term growth. In addition, the costs of administering such a large scale plan can be minimized since it lends itself to mass production techniques, such as automated IBM computers. The mobility the AMA Plan offers is another advantage since many retirement plans are limited by locality. A contributor may, in the AMA Plan, relocate anywhere in the world so long as he remains self-employed and retains his U. S. citizenship and AMA membership. Those interested in joining and wishing further details should write to the American Medical Association Members' Retirement Plan, 535 North Dearborn Street, Chicago, Illinois, 60610.

After investigating the possibility of instituting a retirement plan for the Medical Society members, the Keogh Bill Committee* has set forth the following report and recommendations:

"We believe that a very limited number of our members could participate in a tax-deferred retirement program under the Keogh Law as it is now interpreted by the Internal Revenue Service.

"The restrictions are such that one would need to work alone or with very little permanent help or have an assurance of fixed income with low overhead expenses or institutional type employment in order to make the Keogh Bill attractive as a retirement program. The AMA has offered a plan that will be adequate to those interested in the Keogh Bill. Local counsel with respect to estate problems should be utilized to determine the individual desirability of participation.

---

* Dr. William H. Ferguson, Chairman; Drs. Sanford H. Eisenberg, Elbert T. Phelps and Paul F. Jaquet.

"We believe that a larger number of our members could be materially benefited if we are able to practice medicine under a professional corporation and association statute. Many states have changed their laws to allow such procedures. In 1963 the following states enacted such statutes: Idaho, Illinois, Indiana, Massachusetts, Missouri, Montana, Nevada, New Jersey, New Mexico, North Dakota, Tennessee and Vermont. The stability of a corporate structure with respect to immediate benefits and long-range retirement is far superior to the Keogh Law.

"RECOMMENDATIONS:

1. That we not participate in the Keogh Law as a Society group.

2. The individuals wishing to utilize the Keogh Law can be adequately served through the AMA Plan.

3. That the Medical Society of the District of Columbia support and direct a unified effort to make it possible for our members to practice medicine under a professional corporation and association statute."

Vaccination for International Travelers

A FEDERAL DISTRICT COURT recently upheld the authority of the Public Health Service to place in isolation an international traveler suspected of being a smallpox carrier. It was the first such legal case in the Service's history.

The traveler was a 69-year-old American woman who arrived in New York by air from Stockholm, Sweden, which was in the midst of a smallpox outbreak. She was placed in isolation at the PHS Hospital in Staten Island, New York, because she did not have a valid International Certificate of Vaccination and because, by her own admission, she had not been successfully vaccinated since childhood. (She was vaccinated by a Public Health Service officer at time of arrival and subsequently developed a "good take," which showed that her level of immunity had been low.)

Shortly after the woman was placed in isolation, her lawyer filed a petition for her release in the U. S. District Court for the Eastern District of New York. The petition was denied. The court concluded:

1. That the 3 physicians who had testified shared a concern that was evident, real, and reasoned.

2. That they could not ignore the fact that the woman might have been exposed in Stockholm.

3. That "no one on earth" could know for 14 days whether or not she had been exposed.

4. That the person with a history of unsuccessful vaccination was peculiarly in a position to have become infected and to infect others.

5. That isolation did not discriminate against her or single her out for treatment different from that given others similarly situated. (The woman was one of 17 American citizens and foreign visitors who arrived from Stockholm under similar circumstances over a 2-month period and were placed in isolation. Fortunately, none of them came down with smallpox.)

This case holds an important lesson for all who are concerned with the health of international travelers and with the facilitation of international travel. Persons planning trips abroad should be alerted that many countries, including the United States, require arrivals to present a validated International Certificate of Vaccination against smallpox within the previous 3 years. This and other health requirements, as well as recommendations, for international travel are spelled out in a series of 5 leaflets and a booklet issued by the Division of Foreign Quarantine. Single free copies are available upon request from the Division of Foreign Quarantine, Public Health Service, Washington, D. C. 20025.

Vaccination Against Cholera

Vaccination against cholera is also urged and recommended by the Surgeon General of the Public Health Service for all travelers to Asia and the Western Pacific except babies less than 6 months old. The vaccination consists of 2 inoculations 7 to 10 days apart. For adequate protection, the second inoculation should be obtained not less than 6 days before departure.

Travelers entering the United States from cholera-infected areas are being required to present a valid International Certificate of Vaccination against cholera in the past 6 months.

The VNA Broad Spectrum Home Care Program

CLARISSA GIBSON, M.A.

Executive Director, Visiting Nurse Association of Washington, D. C.

FIVE YEARS AGO, on March 1, 1959, the Visiting Nurse Association inaugurated its Broad Spectrum Home Care Program. A grant from the Eugene and Agnes E. Meyer Foundation and the support and interest of the D. C. Medical Society made it possible.

As one doctor said, "What we need is a package of services which a doctor can order for his patient by putting in one telephone call to the Visiting Nurse Association." Now, this is literally possible. The physician can order for the patient in his home a group of services, nursing, physical therapy, occupational and speech therapy, so coördinated that the patient makes a more rapid and sometimes complete recovery from his serious disablement.

The Visiting Nurse assumes the responsibility for not only scheduling nursing and the therapies needed but also, through team conferences, reports to the doctor the significant factors in the patient's progress or seeks his advice regarding the difficulties encountered. Attendants or aides are guided in meeting the specific needs of the patient. A social worker consults with the team and the family in regard to social and economic problems. The coördinator of the services is Mrs. Thomson, a public health nurse who has had training and experience in rehabilitation nursing and has a wide knowledge of the community resources available for those who need them.

Despite the assistance of the Medical Society in informing physicians of these new resources available for families with multiple needs and complex problems, it took 8 months to attract 8 patients in 1959. Now an average of 8 or 9 patients are accepted each month. Many more could be handled. A physical therapist has been assigned to each of the 5 branch offices. All of the nursing staff learn how to set up an exercise program in accordance with the physician's orders. All bed patients are given range of motion, thereby preventing contractures. Performing exercises regularly is an initial step toward helping a patient regain sufficient muscle function to take care of personal needs.

The Broad Spectrum Home Care program has demonstrated that families can manage well with the types of services available in this program. Some patients can be discharged from the hospital when adequate plans are made for care at home. Each family situation is different, and with thoughtful consideration a family is able to mobilize resources and family strength not always in evidence on the initial visit. Sometimes families are hesitant about allowing an occupational therapist to visit them. However, as hand muscles regain power and the patient acquires more dexterity and ability to do things for himself the occupational therapist is welcomed cordially. The nurse or therapist depends upon a member of the family or the patient himself to learn how to carry out the exercises and activities prescribed by members of the team. When the patient is living alone, a friend or an aide is instructed just as a member of the family is. The Visiting Nurse Association employs 6 practical nurses and 1 aide who work under the supervision of the professional nurse.

The patient is carried on the Broad Spectrum Home Care Program an average of 130 days. Patients crippled by accident or illness have greatly improved under this extensive care at home. Eighty physicians have availed themselves of this service.

The pilot program made possible through the Meyer grant will be concluded this year. It has been demonstrated many times that the concerted effort made possible in this plan has given patients an opportunity to recover their full potential. The Board of Directors of the Visiting Nurse Association supported by the Medical Advisory Committee has decided to continue these special therapies and services for all patients who need them. Physicians who are not familiar with the Broad Spectrum Program of VNA will be interested in knowing that a Visiting Nurse is designated to visit 4 Washington hospitals (George Washington, Georgetown, Freedmen's and the Washington Hospital Center) for several hours a week. With the social worker she is available to assist the physician in planning for the patient's return to his home.

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SILVER SPRING

Yes, There Is a Woman's Auxiliary!

During the recent Scientific Assembly at the Hotel Statler-Hilton in November, 1963, the Woman's Auxiliary to the Medical Society of the District of Columbia was pleased to be able to assist the doctors by addressing 2,000 invitations for the dinner dance, by planning the table decorations, and by being hostesses in the Hospitality Room, where approximately 94 dozen doughnuts and 1,500 cups of coffee were served to hungry doctors and exhibitors during the 3-day meeting.

When we of the Auxiliary learned that the Arrangements Committee was going to give us space for our very first exhibit, we were delighted to have the opportunity to tell of our efforts and accomplishments in various fields, such as community services, international health, financing medical education, and keeping up with medical legislation.

We wonder if our doctor husbands realize that in the last 6 years alone the Woman's Auxiliary has given approximately $7,500 to nursing scholarships in the District of Columbia and more than $5,000 to the AMA Education and Research Foundation. We have collected many cartons of drug samples to be sent off to World Medical Relief; used clothes and toys have been taken to Junior Village; informative literature on health careers has been distributed to District schools; we have worked with the Homemaker Service to help keep this worthy project going; and we have tried to keep informed on current medical legislation.

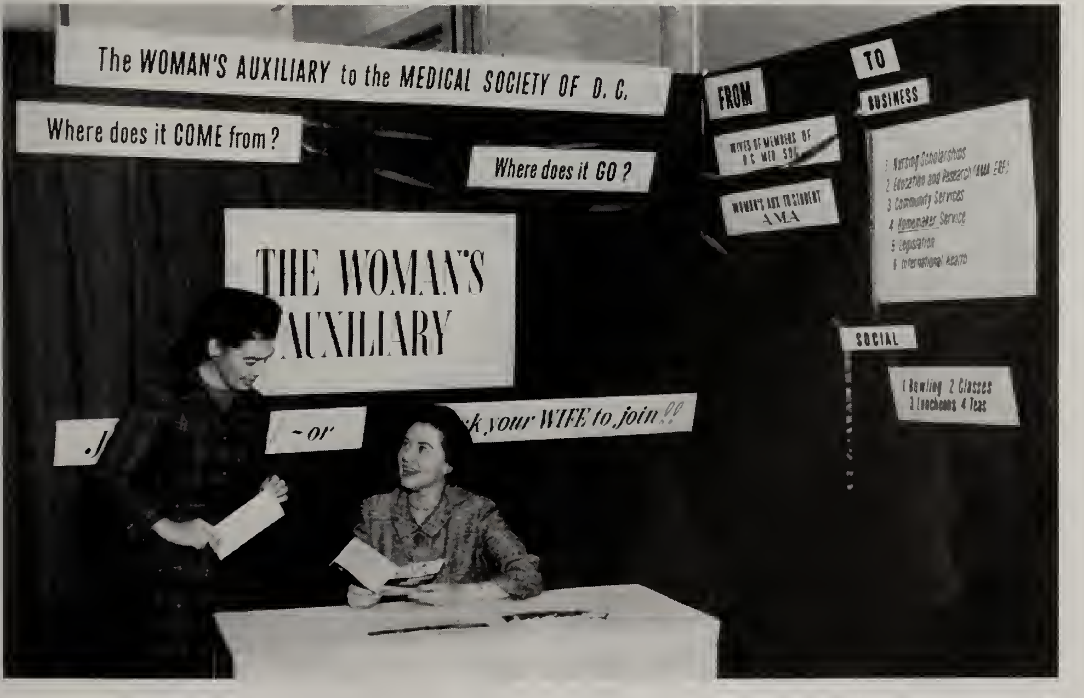
On the social side, we enjoy our monthly meetings with informative speakers and delicious luncheons. Also, approximately 100 members are enthusiastic bowlers in our weekly Bowling League. At this particular time we are absorbed in selling chances on an expense-paid jet trip to Puerto Rico for 2 people—our principal money-making project for this year.

The above activities all serve to keep us busy and out of mischief, but we are ever mindful that the Medical Society is our real reason for being. To quote from our Constitution and By-laws:

"The objectives of the Auxiliary shall be to further the interests of the Medical Society in the District of Columbia and the American Medical Association; to promote acquaintanceship among members' families; and to do such philanthropic and educational work as may be approved by the Medical Society."

With these goals in mind we hope to be able to assist our Medical Society whenever we are called upon.

Mrs. Jonathan M. Williams
President


The WOMAN'S AUXILIARY to the MEDICAL SOCIETY OF D. C.
Where does it COME from?
Where does it GO?
THE WOMAN'S AUXILIARY
FROM
TO
BUSINESS
WIVES OF MEMBERS OF D C MED SOC
WOMAN'S AUX TO STUDENT AMA
1 Nursing Scholarships
2 Education and Research (AMA ERF)
3 Community Services
4 Homemaker Service
5 Legislation
6 International Health
SOCIAL
1 Bowling 2 Classes
3 Luncheons 4 Teas
-or
k your WIFE to join ??

AUXILIARY'S FIRST EXHIBIT AT ANNUAL SCIENTIFIC ASSEMBLY: Mrs. Jonathan M. Williams (seated), President of the Woman's Auxiliary to the Medical Society of the District of Columbia, outlines plans for the day with Mrs. Charles W. Tegge, Chairman of Community Services.

Special cough formula for children

Pediacof®

Each teaspoon (5 ml.) contains codeine phosphate 5 mg.,
Neo-Synephrine® hydrochloride (brand of phenylephrine hydrochloride) 2.5 mg.,
chlorpheniramine maleate 0.75 mg. and potassium iodide 75 mg.

soothing decongestant and expectorant

bright red, pleasant-tasting, raspberry-flavored syrup

Pediacof is different. It is designed especially for children, and each ingredient is in the right proportion. The potassium iodide in Pediacof is so well masked that it is virtually unnoticeable. Children like the sweet raspberry flavor of bright red Pediacof.

Dosage: Children from 6 months to 1 year, ¼ teaspoon; from 1 to 3 years, ½ to 1 teaspoon; from 3 to 6 years, 1 to 2 teaspoons; and from 6 to 12 years, 2 teaspoons. These doses are to be given every four to six hours as needed.

How supplied: Bottles of 16 fl. oz.

Available on prescription only.
Exempt Narcotic.

Side effects: The only significant untoward effects that have occurred are mild anorexia and an occasional tendency to constipation. However, discontinuance of Pediacof has seldom been required. Mild drowsiness occurs in some patients but, when cough is relieved, the quieting effect of Pediacof is considered beneficial in many instances.

Precautions and contraindications: Patients with tuberculosis or those who are known to be sensitive to iodides should not be given Pediacof.

Caution should be exercised if Pediacof is administered to patients with cardiac disorders, hypertension or hyperthyroidism.

Warning: May be habit forming.

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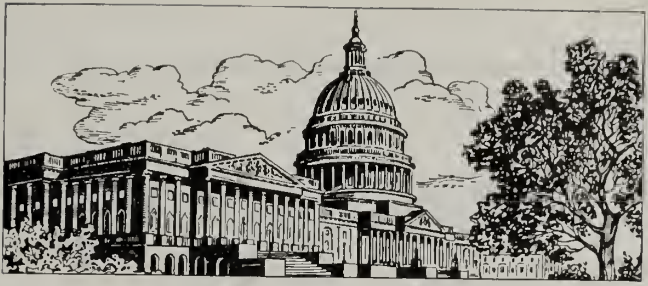
Winthrop



NEWS & PERSONALS

Boards & Committees

The regular meeting of the **Executive Board of the Medical Society of the District of Columbia** was held, January 20, 1964, in the Society's building. Dr. Victor R. Alfaro, Chairman, presided and called the meeting to order at 7:30 p.m. Others present were: Drs. C. Willard Camalier, Jr., Karl C. Corley, J. Spencer Dryden, Harold M. Hobart, Raymond T. Holden, Edward W. Nicklas, Josephine Renshaw, Duane C. Richtmeyer, and Paul R. Wilner. Guests included Dr. Frank S. Pellegrini, Chairman of the House Committee, and the Society's attorney, Mr. Warren E. Magee.

Committee Meetings: The Secretary reported that the following Committees had met since the last Board meeting:

January 3 Review Board for Prepaid Medical Care Benefits
10 Committee on Cancer Control
15 Board of Credentials
16 Subcommittee on Child Welfare

Child Welfare Subcommittee Report: Approved a recommendation of this Committee that priority for local Hill-Burton hospital construction funds be given to the proposal of the Hillcrest Children's Center for a new "Mental Hospital with Psychiatric Diagnostic and Treatment Facilities for Emotionally Disturbed Children," to be affiliated with and located near Children's Hospital.

New Building Site: Selected 2005-07-09 Eye Street, N.W. as the site for a new Society headquarters, selected the architect, and detailed specific instructions to the House Committee to facilitate completion of this project.

Board of Credentials Report: Approved the following recommendations of the Board of Credentials:

Active Members

Phil L. Carberry, 3639 North 36th Road, Arlington, Va.
Robert Sexton Higdon, George Washington University Hospital
George Jerome Schonholtz, 730-24th Street, N.W.
David Murray Seitzman, Washington Clinic
George Anthony Tralka, 3621 Van Ness Street, N.W.
Naomi Kaplan Wenner, 5323 Connecticut Avenue, N.W.

Resident-Intern Members

Peter Oberhoff, 1623 Mt. Eagle Place, Alexandria, Va.
Edward Harvey Weiss, Children's Hospital

Transfers

Associate to Active: Vernon Henry Balster, Chi-chin Huang, Assad S. Khoury, and Theresa T. Woo

Active to Associate: Joseph Bloom, Everett S. Caldemeyer, W. Paxson Chalfant, Jr., William F. Colliton, Jr., Julius S. Piver, Whitney G. Sampson, James S. Stanton, and H. Blacker Weinberg.

Affiliate to Associate: Charles M. Weber

Resignations

Active: Lt. Colonel Royce E. House, Hugh H. Hussey, Erwin G. Pese, Robert D. Ralph, and Roy E. Ritts

Associate: Rex E. Buxton, Marian M. Crane, Perry W. Gard, William Dennis Good, C. Albert Hudson, and Dorothy S. Jaeger-Lee.

New Life Members: The following members, who have been Active members for 40 years, are now exempt from further payment of Society dues:

Seniority Number		*Date of Membership*
857	Harrison H. Leffler	February 7, 1924
858	Clapham P. King	February 12, 1924
861	Fred R. Sanderson	March 5, 1924
862	Carl Goldenberg	March 10, 1924
866-A	William P. Argy	June 17, 1924
867	William J. Cusack	June 26, 1924
869	Frederick A. Reuter	September 8, 1924

Nonpayment of Dues: Voted that members whose 1963 dues were not paid by December 31, 1963 be given until February 15, 1964, to do so, at which time all insurance companies handling

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Practical
Nurses
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by Physicians

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Society-approved plans will be notified to drop physicians who are no longer Society members.

Public Policy Committee Report: Approved a recommendation endorsing S. 2390, a bill to make legal the augmenting of pay to certain medical personnel engaged in teaching at D. C. General Hospital.

Committee on Keogh Bill and Related Problems: Voted to refer to the Public Policy Committee a recommendation that the Medical Society of the District of Columbia support and direct a unified effort to make it possible for our members to practice medicine under a professional corporation and association statute.

Postgraduate Seminar Cruise: Agreed to have Committee on Postgraduate Education plan for such a cruise in the spring of 1965 and to determine membership interest in such a project.

Grievance Committee: Voted to approve a recommendation urging Medical Service of D. C. to proceed to develop methods which would make possible the exclusion of physicians who continue to violate the basic insurance principles, particularly as they relate to misuse and overutilization.

Miscellaneous Business: Voted to send Mr. Magee to the AMA Legal Conference, April 16–18, in Chicago; to continue membership in the Washington Board of Trade, the U. S. Chamber of Commerce, and the National Society for Medical Research; and to refer certain AMA Resolutions to the proper committees.

Meetings

The Heart Association of Northern Virginia, Inc. requests that physicians hold open the date, April 1, for a **Cardiac Symposium** which is to be sponsored jointly by the Association and the Washington Heart Association at the Marriott Twin Bridges Motor Motel on the Virginia side of the 14th Street Bridge. Registration will begin at 8 a.m. This will be an all-day meeting, with sessions from 9 a.m. to 4:30 p.m. Further information may be obtained by calling Mrs. Anna C. VanSickler, Executive Director of HANV, Jackson 7-6645.

The Annual Scientific Meeting of the Medical Society of St. Elizabeths Hospital will be held at the Hospital on April 17, 1964. The Program Committee invites anyone interested in submitting a paper to forward the title and a brief abstract to the Chairman, Dr. David A. Lanham, 3000 Connecticut Avenue, N.W., Washington, D. C. 20008; telephone Hobart 2-4300.

Members are reminded again of the **Kober Lecture,** which will be held on Thursday evening, April 23, in the Gorman Auditorium of the Georgetown University Hospital. The speaker, **Dr. Frank L. Horsfall, Jr.**, President and Director of the Sloan-Kettering Institute for Cancer Research, New York City, will speak on "Some Facts and Fancies About Cancer." A cordial invitation is extended to all members of the D. C. Medical Society to hear this address.

The Montgomery County Tuberculosis and Heart Association will sponsor its **Fifth Annual Cardiac Symposium,** May 21, at the Clinical Center of the National Institutes of Health. The theme this year is "New Methods in Cardiac Evaluation." Many outstanding lecturers have promised to participate in this program. More details will appear in the April issue of the MEDICAL ANNALS.

General News

The United States Employment Service for the District of Columbia has established a **Hospital and Nursing Unit,** specializing in the placement of workers with medical service experience and training. This includes practical nurses, both licensed and unlicensed, home attendants, and physical therapy attendants. Through its private duty practical nurse registry it can rapidly locate and refer reliable practical nurses. References are checked before referral. The telephone number is 393-6151.

The American Heart Association has scheduled its 1964 Annual Scientific Session for October 23–25 in Convention Hall, Atlantic City, N. J. The deadline for submitting abstracts of papers to be presented at the Scientific Session is May 15. Papers intended for presentation should be based on original investigations in, or related to, the cardiovascular field. Abstracts must be limited to 250 words. Forms for submitting abstracts and applications for space in the scientific exhibit (also to be returned by May 15) are available from Dr. Richard Hurley, American Heart Association, 44 East 23rd Street, New York, N. Y. 10010.

The Section of Ophthalmology of the Southern Medical Association is now accepting papers, up to May 15, 1964, for presentation at the next annual meeting in Memphis, Tennessee, November 16–19, 1964. Further information may be secured from the Secretary, Dr. George S. Ellis, 812 Maison Blanche Building, New Orleans, La.

The Pastoral Institute is conducting a seminar open to all clergymen in the Washington Metropolitan Area on "Pastoral Care of the Alcoholic Parishioner and His Family." The seminar, consisting of 10 sessions, is held weekly on Wednesdays at St. Alban's Church; it began February 19. Heading the faculty is the Reverend Canon Richard Williams, Director of Alcoholic Studies for The Pastoral Institute. He is assisted by Dr. Anthony Zappala, Director of its Alcoholic Treatment Unit. Other members of the faculty include Drs. Charles W. Thompson, E. Y. Williams, Jean H. Menetrez, John Lofft, George Chornesky, Irving Raifman, and the Reverend William O'Donnell.

The Pastoral Institute is located at 3000 Connecticut Avenue, N.W. The telephone number is Adams 2-5452.

The Public Health Service announced, February 2, the establishment of a **Mental Retardation Branch** within the Service as a means of improving and extending the availability of health services to the mentally retarded. The new Branch, headed by Dr. Paul H. Pearson, will provide financial assistance to the states for the planning of comprehensive services for the mentally retarded.

Dr. Pearson is a graduate of Northwestern University School of Medicine. He comes to his new post from the University of California at Los Angeles, where he was a postdoctoral fellow in mental retardation. He has had several years of specialized private practice with children suffering from neurologic disorders and handicaps.

A Directory of Resources for Mentally Ill Children in the United States, the first of its kind, has just been published by the National Association for Mental Health in coöperation with the National Institute of Mental Health. It is designed to assist professionals in the referral and placement of seriously disturbed children.

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The result of a 3-year survey, the Directory is a guide to 147 public and private treatment centers, schools and hospitals which provide specialized care for children, up to the age of 18, suffering severe mental illnesses. Listed by states, each service is specifically described as to auspices, type of service offered, fees charged, and admission policies. Inclusion in the list does not imply endorsement or approval by either the Association or by NIMH.

The Directory is available at $2.00 each from the National Association for Mental Health, Inc., 10 Columbus Circle, New York 19, N. Y.

The Educational Council for Foreign Medical Graduates announces that issuance of the ECFMG Temporary Certificate will be discontinued after one more examination. At its meeting on December 11, 1963, the Board of Trustees voted unanimously to issue Temporary Certificates to candidates scoring within 5 points of a passing grade in the ECFMG examination of March 25, 1964, but thereafter to discontinue issuance of these certificates. Beginning with the examination of October 21, 1964, only the Standard Certificate will be issued, based upon a passing score of 75.

The Medico-Chirurgical Society of the District of Columbia, at its January meeting, reëlected Dr. Mitchell W. Spellman, President. Other officers elected were: Dr. Erman W. Edgecombe, Vice President; Dr. Charles H. Clarke, Recording Secretary; Dr. I. Blanche Bourne, Corresponding Secretary; and Dr. Claude P. Carmichael, Treasurer. Elected to the Board of Governors were Drs. Joseph L. Johnson, Joel C. Smith, Charles H. Hunter, Claude L. Cowan, and John A. Kenney, Jr.

The Medico-Chirurgical Society will be host to the 69th Annual Convention of the National Medical Association in Washington, August 2–6, 1964, at the Hotel Statler-Hilton. At this meeting Dr. W. Montague Cobb will be installed as President of NMA. Dr. Cobb is Professor and Head of the Department of Anatomy at Howard University and has been Editor of the Association's *Journal* since 1950. Dr. Edgecombe is General Chairman of the Local Committee on Arrangements.

New officers are now serving the nearby city and county medical societies of Virginia. The new incumbents for **Arlington County Medical Society** are:

Dr. Joseph O. Romness, *President*; Dr. Sidney Tyroler, *President-elect*; Dr. John J. Nolan, *Vice President*; Dr. Gerald Fisher, *Secretary*; and Dr. Robert E. Byrne, *Treasurer.*

The following officers were installed at the December meeting of the **Alexandria Medical Society**:

Dr. Adrian J. Delaney, *President*; Dr. Thomas McGough, *President-elect*; Dr. Robert L. Bregman, *Vice President*; Dr. Harold Berman, *Secretary*; and Dr. Bernard H. Zeavin, *Treasurer.*

The Fairfax County Medical Society also installed officers at its December meeting. They are:

Dr. Kenneth Berger, *President*; Dr. Joseph Prominski, *President-elect*; Dr. Thomas Wright, *Vice President*; Dr. Donald Thorn, *Secretary*; Dr. Mario Espinola, *Treasurer*; and Drs. Edward Gallagher and C. Barrie Cook, *members at large.*

Many of these officers are Associate members of the D. C. Medical Society.

The Texas State Journal of Medicine, in its January issue, has published a record of the medical treatment of the late President John F. Kennedy, Governor John Connally, of Texas, and Lee Harvey Oswald. As a contribution to medical history the article gives the "impressions of the individual participating physicians, written in a period of strain, without consideration for rhetoric." The same issue contains a description of the gunshot wounds of 3 other Presidents who were assassinated, Abraham Lincoln, James A. Garfield, and William McKinley, reprinted from *Proceedings of the Staff Meetings of the Mayo Clinic* in January, 1944. Written by Dr. S. B. Harper, this article concluded with the statement that Lincoln could not have been saved even with modern therapy, but Garfield and McKinley could have been helped.

This issue of the *Texas Journal* is available for reading in the Medical Society's Executive Offices.

To commemorate the founding 30 years ago of the American College of Chest Physicians, the Board of Regents of the College voted to establish a **Founder's Lecture in honor of Murray Kornfeld,** a layman who founded the society. The Lecture will be presented at each International Congress of the College. These International meetings are held in various parts of the world every 2 years. The next one will convene in Mexico City, October 11–15, 1964. The Founder's Lecture carries with it a grant of $1,000 to defray travel and other expenses to the Congress.

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Mr. Kornfeld is Executive Director of the College and Managing Editor of its journal, *Diseases of the Chest.*

Dr. John F. Sherman has been appointed Associate Director of Research Grants and Awards at the National Institutes of Health. In this newly established post he will be responsible for the awarding of NIH funds to non-Federal institutions of research and education.

Miss Clarissa Gibson, who has served as Executive Director of the Visiting Nurse Association of Washington since 1951, retired on January 31. An article which she authored appears in this issue of the MEDICAL ANNALS. It describes the VNA services available to families in the Washington Metropolitan Area, especially its Broad Spectrum Home Care Program, which was inaugurated 5 years ago under a grant from the Eugene and Agnes E. Meyer Foundation.

The Nation's **first Certified Medical Assistants** is a group of 24 physicians' employees from 8 states who successfully completed national certification examinations administered in 3 locations in the United States last fall. The national certification program is the culmination of several years' work by the American Association of Medical Assistants, an organization of 12,000 members in 40 states. Purposes of the newly established certifying program are to help physicians identify those qualified as top-level office assistants and to establish professional standards and goals for medical assistants.

Single copies of a broad study outline of all examination sections with a list of reference books are available on request from the national office of AAMA, 510 North Dearborn Street, Chicago 10, Ill. How to qualify for the examination may also be obtained from the national office.

Mr. Harold B. Rogers, who reported medical news for *The Evening Star* for many years, died January 13, 1964. He lived at 3620 T Street, N.W.

Mr. Rogers had served *The Evening Star* for 34 years when he retired in 1957. At various times he had covered District affairs, the Justice and Treasury Departments, and medicine. After his retirement he was Washington correspondent for the American Medical Association *News* of Chicago.

A native of Pendleton, Indiana, Mr. Rogers graduated from Earlham College in Richmond, Ind. Prior to World War I he enrolled in Columbia University Graduate School of Journalism but left after several months to work on the *Danbury* (Conn.) *News.* During World War I he edited military newspapers at Camp Zachary Taylor in Louisville, Ky., and at Walter Reed Hospital. After his discharge he joined the Washington Bureau of the Associated Press, and in 1922 joined the staff of *The Star.*

Personals

Dr. A. B. Bennett was honored by the United States Power Squadrons and by the Potomac River Power Squadron at the latter's Founders' Day celebration at the Corinthian Yacht Club, February 2. The USPS, which was 50 years old on that day, presented Dr. Bennett a plaque in appreciation of the fact that he was responsible for its continued existence. *The Evening Star* of January 31 contained an article by Wheeler Johnson, Outdoor Editor, relating the history of the U. S. Power Squadrons. He credits Dr. Bennett with the organization of the Potomac River Power Squadron in October, 1914. After World War I, when the U. S. Power Squadrons was on the verge of disbanding, Dr. Bennett insisted on its reorganization with some changes in its constitution. In 1920 he was elected Chief Commander. Under his guidance the USPS sur-

DR. A. B. BENNETT, founder of the Potomac River Power Squadron and responsible for the continuation of the U. S. Power Squadrons, peruses the news magazine of the latter, *The Ensign*.

vived and today numbers some 60,000 members in 335 squadrons.

Sunday, February 2, was a busy day for Dr. Bennett. After receiving the plaque from USPS and a blazer from the Potomac River Power Squadron, he was among the Past Presidents of the D. C. Medical Society who were present as honored guests at the concert given in the late afternoon by the Doctors Symphonetta in the Medical Society's auditorium.

Dr. Gordon M. Meade has been appointed Director of Medical Education of the National Tuberculosis Association and its medical branch, the American Thoracic Society. Dr. Meade, an Associate member of the D. C. Medical Society, has been a member of the Board of Directors of the D. C. Tuberculosis Association since 1959. He has been Clinical Director of the Miners Memorial Hospital Association since 1955 and prior to that was Medical Director of the Trudeau Sanatorium, Trudeau, N. Y. He assumed his new position, January 1, succeeding Dr. Julius L. Wilson, who retired.

Dr. William S. Middleton, retired Chief Medical Director of the Veterans Administration, is Chairman of the new Drug Research Board, which held its first meeting in Washington, D. C., January 20–21. The Board is a successor to the Commission on Drug Safety, which held its last formal meeting in Chicago, January 17. Dr. Middleton is an Honorary member of the D. C. Medical Society.

Dr. John D. Porterfield, formerly Deputy Surgeon General of the U. S. Public Health Service, is the new president of the American Public Health Association. Dr. Porterfield lives in Berkeley, Calif.; he is Coördinator of Medical and Health Services of the University of California. He has continued his affiliation with the D. C. Medical Society as an Associate member.

Dr. James P. McCarrick has been elected Chairman of the Medical Staff of Suburban Hospital, Bethesda. He is an Affiliate member of the D. C. Medical Society.

Dr. Marshall M. Parks received the Man-of-the-Year Award of the Chillum Lions Club, January 18, at its annual Charter Night at the Roosevelt Hotel. Dr. Parks is head of the Department of Ophthalmology at the Washington Hospital Center and Children's Hospital.

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Dr. John C. Rose, Dean of Georgetown University School of Medicine, received the Fordham College Alumni Association Achievement Award, January 23, at the College's 110th Annual Alumni Dinner at the Waldorf-Astoria in New York City.

Dr. Glen Pincock, Medical Officer for the National Bureau of Standards, retired, January 17. He was in private practice for 20 years prior to beginning his Government service in 1955. In 1962 he was awarded the Department of Commerce silver medal for meritorious service. Dr. Pincock is a graduate of George Washington University School of Medicine (1934) and an Associate member of the D. C. Medical Society.

Dr. Allen S. Cross, formerly Medical Director of the Government Printing Office, has succeeded Dr. Pincock at the Bureau of Standards.

Dr. William B. Walsh was awarded a gold medal by the City of Trujillo, Peru, December 29. Dr. Archie Golden accepted the medal along with a Certificate of Appreciation for Dr. Walsh.

Dr. Walsh is also the proud recipient of a telegram from President Lyndon B. Johnson which was sent him on Christmas Eve. It conveyed the President's "warmest wishes to the dedicated people of the hospital ship S.S. HOPE."

Dr. Charles Stanley White was awarded a Certificate of Honorary Membership in the George M. Kober Medical Society, January 20.

Dr. Seymour Alpert has been reëlected General Chairman of the 1964 campaign of the United Jewish Appeal of Greater Washington.

Dr. William B. Clotworthy, Jr., and Dr. Joseph L. Sheridan were elected members of the American Psychoanalytic Association at its

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fall meeting in New York City, December 6–8, 1963.

Dr. Jules Gilbert retired, March 1, after 15 years' service as general practitioner at 3200 Chillum Road, Mt. Rainier, Md.

The following members of the D. C. Medical Society were elected Fellows of the American College of Physicians, November 9, 1963: **Drs. Arthur Burgerman, Thomas E. Curtin, Samuel D. Loube, Robert R. Montgomery, and Howard E. Ticktin.** The following were elected to Associate membership in the College: **Drs. Marshall H. Jacobson, Rashid A. Massumi, and Richard B. Perry.**

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Sealtest
Spring Garden Salad
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Letters to the Editor

German Medical Student Seeks U. S. Counterpart

As a student of medicine and philosophy (6 terms) I would like to spend 3–4 months in summer 1964 of study in the U. S. A. in order to extend my knowledge in medicine and to become acquainted with the country and the American people. For this reason I would like to get in contact with doctor's sons of my age and the same field of interest whom I could visit in America and who also could visit me in Germany.

We are living in the climatic health-resort Hohenhausen in the Nordlippischen Berge near by the world-known spas Bad Salzuflen, Bad Oeynhausen and Bad Pyrmont. My father has here a great practice and a sanatorium of his own. I would be very grateful to you if you could help me in finding some young people who would like to correspond with me.

Yours sincerely,
Uwe Stocksmeier
cand. med. et phil.

4925 Hohenhausen/Lippe
Germany

Obituaries

Roger Stahel Cohen, A.B., M.D.

(1898–1963)

Dr. Roger S. Cohen, Washington psychiatrist whose court testimony in 1929 led to the adoption of the "irresistible impulse" sanity test in criminal cases, died, December 14, 1963, at the Washington Hospital Center.

Dr. Cohen was a fourth generation Washingtonian, born July 10, 1898, to Myer and Helen Wolf Cohen. A grandfather, Simon Wolf, served as U.S. Consul General to Egypt during the 1880's. Dr. Cohen graduated from Western High School in 1915. After receiving his A.B. degree from Princeton University in 1919, he returned to Washington to study medicine at George Washington University. He graduated with the Class of 1924. Following a year's internship at Emergency Hospital, he took resident training in psychiatry at St. Elizabeths Hospital from 1925 to 1927. He also spent a year in postgraduate training in psychiatry and neurology at the University of Vienna in Austria.

After his year abroad Dr. Cohen returned to the United States and began private psychiatric practice in Baltimore. He was on the staff of Johns Hopkins Hospital from 1929 to 1932, when he moved to Washington. He served on the staffs of Emergency Hospital in Washington and Prince Georges Hospital in Maryland. He had been consulting psychiatrist to the Home for Incurables since 1935. For many years he directed a weekly mental health clinic for the needy at the old Emergency Hospital.

Dr. Cohen was instrumental in the founding of the Commission on Mental Health in 1938 and served as a member of its first board. At the time of his death he was a member of the Board of Veterans Appeals of the Veterans Administration, a post he had held since 1957.

He served in the Navy during World War I as a seaman. During World War II he served in the Medical Corps of the U.S. Naval Reserve from 1941 to 1945 and held the rank of Commander.

Dr. Cohen was a diplomate of the American Board of Psychiatry and Neurology. Elected to Active membership in the Medical Society of the District of Columbia in 1933, he transferred to Associate membership in 1957, when he retired from private practice. He was a member of the American Medical Association.

He leaves his wife, Mrs. Lee Cohen, of 3767 Oliver Street, N.W.; a daughter, Mrs. Helen Wilson, of San Francisco; 3 sons, Roger S. Cohen, Jr., of Glen Echo Heights, Md., Scott T. Cohen, of Austin, Texas, and William B. Cohen, of Kensington, Md. He also leaves 2 sisters, Mrs. Edith Robeson, of Washington, and Mrs. Ruth B. Chase, of Worcester, Mass., and a brother, Myer Cohen, of New York City.

John Royal Ernst, M.D.

(1884–1963)

Dr. John R. Ernst, Washington psychiatrist, died, December 19, 1963, in Mt. Alto Veterans Administration Hospital. His home was at 4000 Cathedral Avenue, N.W.

Dr. Ernst was born in Louisburg, Kansas, February 24, 1884. His father, Dr. John D. Ernst, was a physician. His mother was Elizabeth Adams Ernst. After attending the public schools in Louisburg, he enrolled at the University Medical College (now University of Kansas) in Kansas City, Mo., and graduated in 1910. He interned at Bethany General Hospital in Kansas City, Kansas.

During the years following his internship he served on the staffs of several hospitals: St. Elizabeths Hospital, Washington (1913–1915); Peoria (Illinois) State Hospital (1915–1918); U. S. Public Health Service Hospital at Perry Point, Md. (1921–1924); and Henry Ford Hospital, Detroit (1925–1930). He was licensed in the District of Columbia in 1930, and for 20 years, until 1950, served with the U.S. Veterans Administration. Upon retiring from V.A. he engaged in private practice. His offices were in the Medical Center, 915 19th Street, N.W.

Dr. Ernst served in World War I as Captain in the Neuropsychiatric Unit of the U.S. Army Medical Corps. During World War II he served for almost 3 years as psychiatrist on the Induction Board at Fort Myer, Va.

He was a Life Fellow of the American Psychiatric Association, an Active member of the Medical Society of the District of Columbia since 1943, and a member of the American Medical Association and the St. Elizabeths Hospital Medical Society. He was also a member of the American Legion, the Military Order of the World Wars, and the Benjamin B. French Lodge No. 15.

His wife, Mrs. Shirley Nelson Ernst, survives him. In addition he leaves 2 sisters, Miss Blanche Ernst and Miss Lottie Ernst, and a brother, George Ernst, all of Kansas.

Irving Schulan, A.B., M.D.

(1915–1963)

Dr. Irving Schulan, who was on the staff of Group Health Association, Inc., died, December 29, 1963, in his home at 313 Irwin Street, Silver Spring, Md.

Dr. Schulan was born in New York City, May 31, 1915, to Aaron and Ida Kaplan Schulan. He received his early education in the public schools of Closter, New Jersey. He enrolled at Syracuse University and received his Bachelor's degree from the College of Liberal Arts in 1936. He continued his education in medicine at Syracuse and graduated in 1940. He interned at the University's Medical Center the next 2 years.

Dr. Schulan completed his internship during the time of World War II. Commissioned Captain in the Army Medical Corps in 1942, he served with the Army in Australia, New Guinea, and the Philippines. When he returned to the States in 1946 he took 6 months' postgraduate training at Englewood Hospital in Englewood, N.J. He then joined Group Health Association in Washington. He was on the courtesy staffs of Doctors and George Washington University Hospitals.

He became an Active member of the Medical Society of the District of Columbia in 1947. He was a member of Phi Delta Epsilon Fraternity.

He is survived by his wife, Mrs. Anne Schulan, and 2 young sons, Philip and Charles.

Bilateral Brenner Tumors—Badwey et al

(Continued from page 107)

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1964

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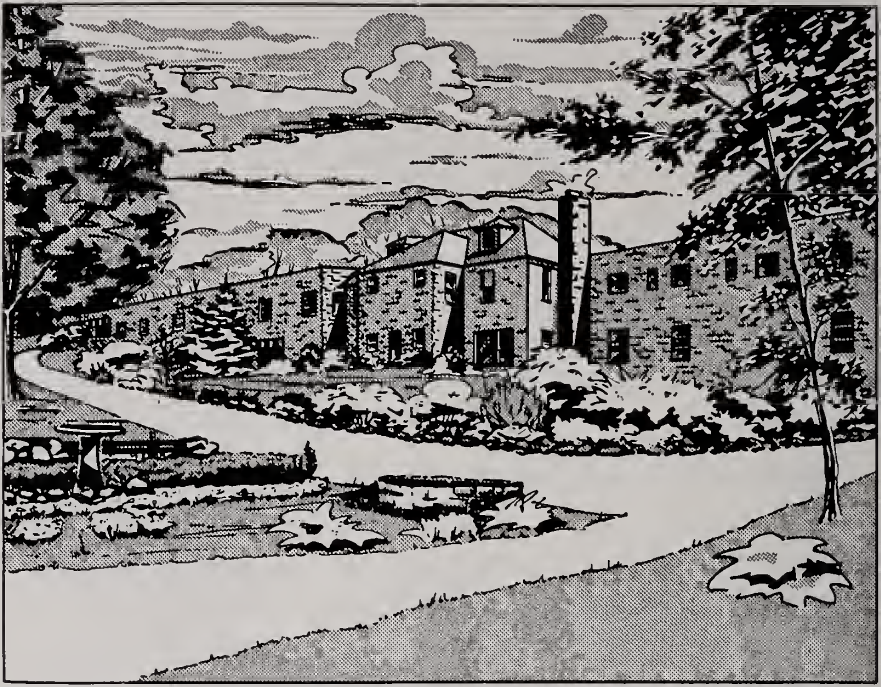

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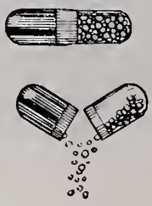

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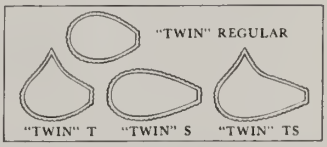

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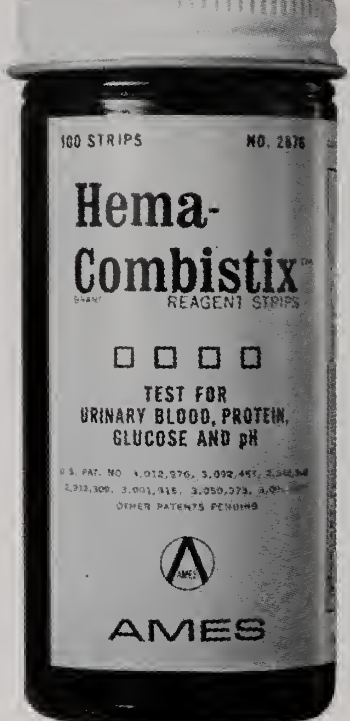
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*U.S. Patent Nos. 2,565,057-2,695,261

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April 3–5: American Association of Pathologists and Bacteriologists. Drake Hotel, Chicago. Address: Dr. John R. Carter, *Secretary-Treasurer*, University of Kansas Medical Center, Kansas City 3, Mo.

April 3–5: American Society of Internal Medicine. Atlantic City, N. J. Address: Mr. Albert V. Whitehall, *Executive Director*, 3410 Geary Blvd., San Francisco 18, Calif.

April 6–10: American College of Physicians. Chalfonte-Haddon Hall, Atlantic City, N. J. Address: Dr. Edward C. Rosenow, Jr., *Executive Director*, 4200 Pine Street, Philadelphia 4, Pa.

April 11–16: American Academy of General Practice. Convention Hall, Atlantic City, N. J. Address: Mr. Mac F. Cahal, *Executive Director*, Volker Blvd. at Brookside, Kansas City 12, Mo.

April 13–16: American Radium Society. Greenbrier Hotel, White Sulphur Springs, West Va. Address: Dr. Justin J. Stein, *Executive Secretary*, UCLA School of Medicine, Los Angeles 24, Calif.

April 30–May 2: American Association for History of Medicine. Sheraton Park Hotel, Washington. Address: John B. Blake, Ph.D., Secretary-Treasurer, % National Library of Medicine, 9600 Wisconsin Avenue, Bethesda, Md.

May 3–7: American Society for Microbiology. Sheraton Park and Shoreham Hotels, Washington, D. C. Address: Mr. R. W. Sarber, Executive Secretary, 115 Huron View Blvd., Ann Arbor, Mich.

May 11–14: American Urological Association. Penn-Sheraton Hotel, Pittsburgh. Address: Mr. William P. Didusch, *Executive Secretary*, 1120 North Charles Street, Baltimore 1, Md.

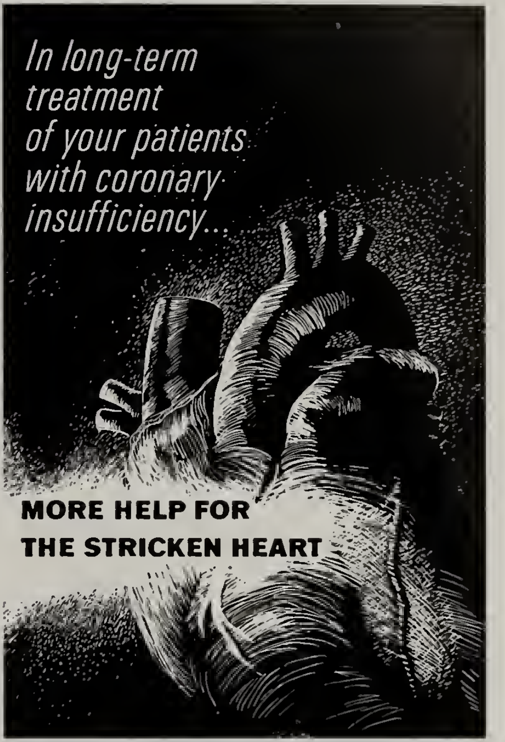
May 11–14: Aerospace Medical Association. Americana Hotel, Bal Harbour, Fla. Address: Dr. William J. Kennard, *Secretary*, Washington National Airport, Washington 1, D. C.

May 17–22: American College of Obstetricians and Gynecologists. Americana Hotel, Bal Harbour, Fla. Address: Mr. Donald F. Richardson, *Executive Director*, 79 West Monroe Street, Chicago 3, Ill.

May 25–27: American Gynecological Society. The Homestead, Hot Springs, Va. Address: Dr. C. J. Lund, *Secretary*, 260 Crittenden Blvd., Rochester 20, N. Y.

May 25–27: American Thoracic Society. Statler Hotel, New York City. Address: Mr. Frank W. Webster, *Executive Secretary*, 1790 Broadway, New York 19, N. Y.

May 28–30: American Ophthalmological Society. The Homestead, Hot Springs, Va. Address: Dr. Joseph A. C. Wadsworth, *Secretary*, 108 East 68th Street, New York 21 N. Y.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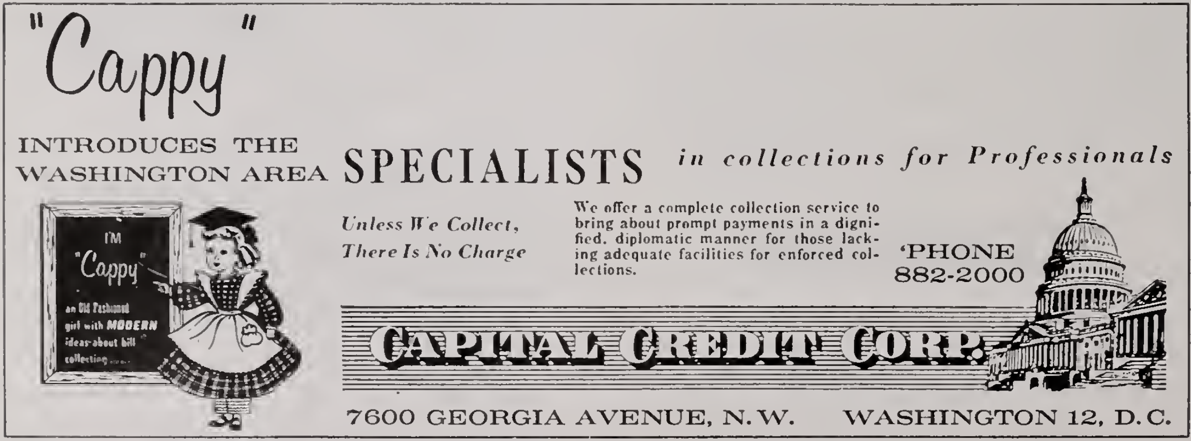
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*Roseman, E.: *Neurology* **11**:912, 1961. 33664

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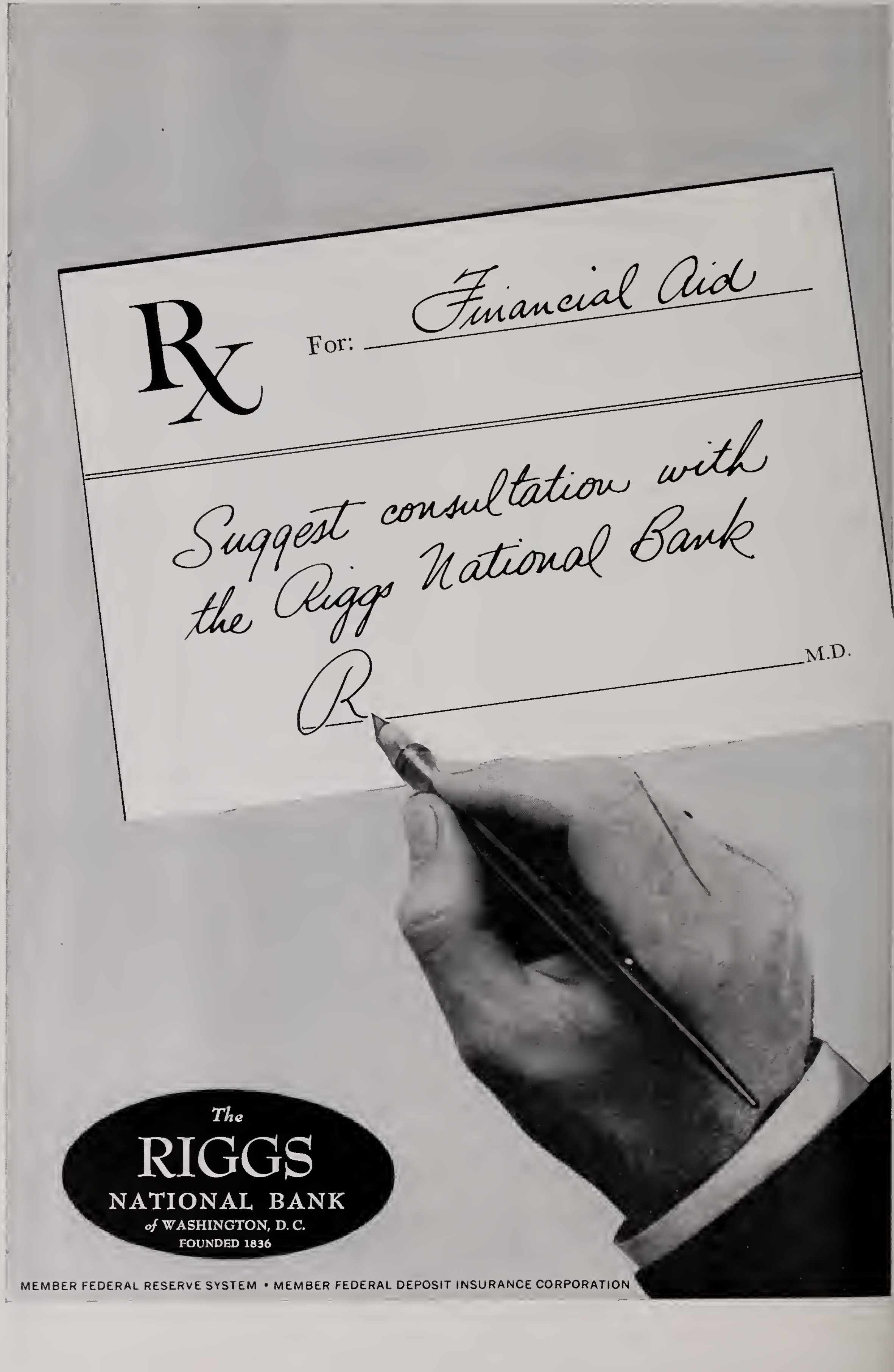
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Second-class postage paid at Baltimore, Md.
Published monthly at
Mount Royal and Guilford Avenues,
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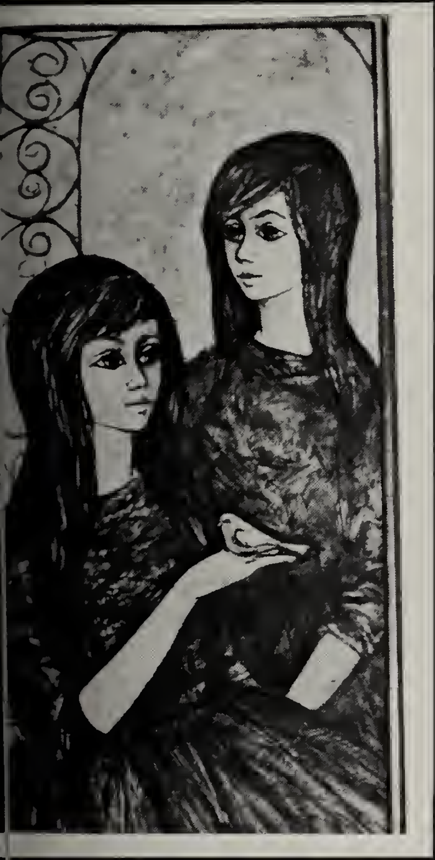

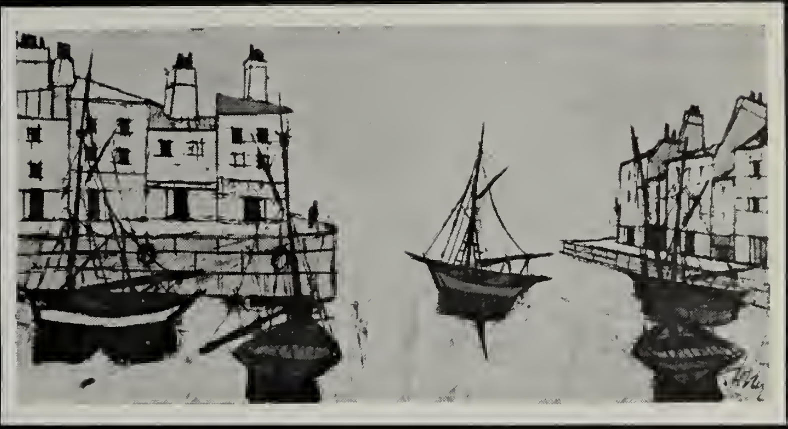

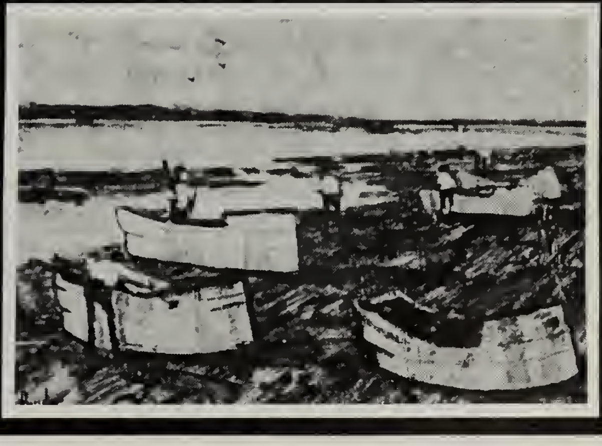

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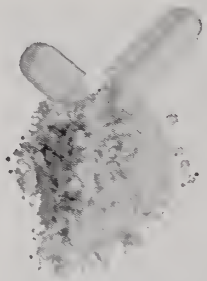

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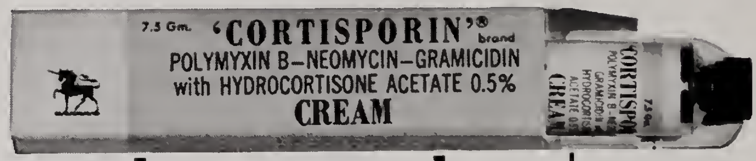
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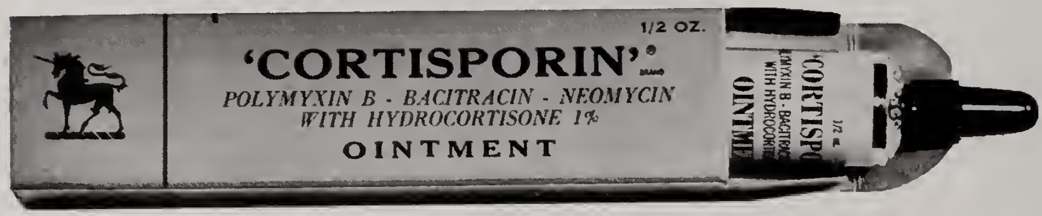
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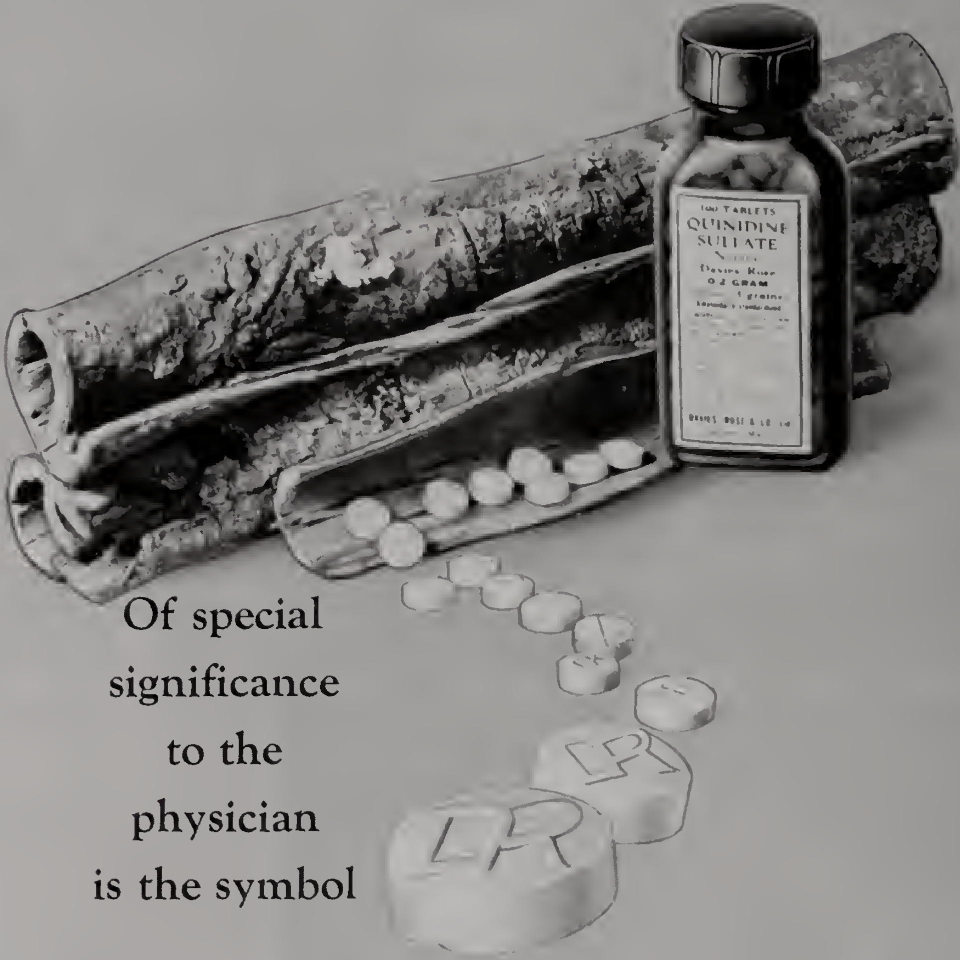

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in maintenance therapy...

Arthralgen®

a working analgesic for the active arthritic

ARTHRALGEN®

Each tablet contains:

Salicylamide.......	250 mg.
Acetaminophen....	250 mg.
Ascorbic acid (Vitamin C)......	25 mg.

Arthralgen, a better-tolerated analgesic formulation of time-tested ingredients, works faster to free the arthritic from his pain without salicylate side effects. Since its analgesic components require no chemical conversion to act in the body, Arthralgen's pain relieving benefits are immediately available to provide a smoother, more rapid obtundation of pain than can be achieved with many true salicylates.

Arthralgen is especially useful for the prompt relief of early morning stiffness and pain with less risk of gastric irritation. And since Arthralgen contains no sodium it is safe for long-term use in arthritics who have other conditions which necessitate sodium restriction.

ARTHRALGEN®-PR

Each tablet contains:

Salicylamide.......	250 mg.
Acetaminophen....	250 mg.
Ascorbic acid (Vitamin C)......	25 mg.
Prednisone........	1 mg.

The basic Arthralgen formulation plus prednisone is indicated for patients who require steroids. Prednisone has three advantages over cortisone, hydrocortisone, and ACTH. They are: (1) lack of sodium retention, (2) absence of increased potassium excretion, and (3) the unlikelihood of steroid-induced hypertension.*

Robins

BRIEF SUMMARY

Arthralgen and Arthralgen-PR are indicated in the management of rheumatoid arthritis, acute gouty arthritis, rheumatoid spondylitis, osteoarthritis, bursitis, fibrositis, and neuritis. Arthralgen may be used for analgesia in colds, flu, and various myalgias.

DOSAGE: One or two tablets four times a day. After remission of symptoms, dosage should be reduced to the minimum maintenance level.

SIDE EFFECTS: Nausea, GI upset, or mild salicylism may rarely occur. Symptoms of hypercorticoidism dictate reduction of dosage of Arthralgen-PR.

PRECAUTION: Reduction in dosage of Arthralgen-PR given over a long period should be gradual, never abrupt.

CONTRAINDICATIONS: Hypersensitivity to any ingredient.

As with any drug containing prednisone, Arthralgen-PR is contraindicated, or should be administered only with care, to patients with peptic ulcer, tuberculosis, nephritis, diabetes mellitus, acute psychoses, Cushing's syndrome (or Cushing's disease), overwhelming spreading (systemic) infection, or predisposition to thrombophlebitis.

Arthralgen-PR is generally contraindicated in patients with uremia and viral infections, including poliomylitis, vaccinia, ocular herpes simplex, and fungus infections of the eye. It is also contraindicated in patients with chicken pox or susceptible persons exposed to it.

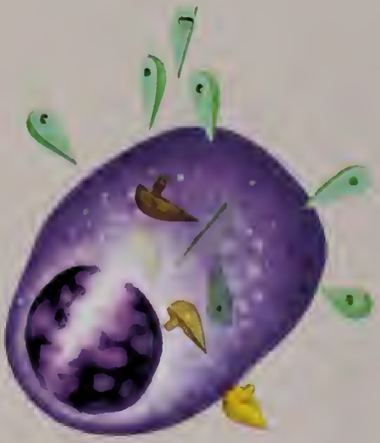
SUPPLY: Arthralgen (white, scored) and Arthralgen-PR (yellow, scored) tablets are available in bottles of 100 and 500.

*Cohen, et al: J.A.M.A., 165:225, 1957.

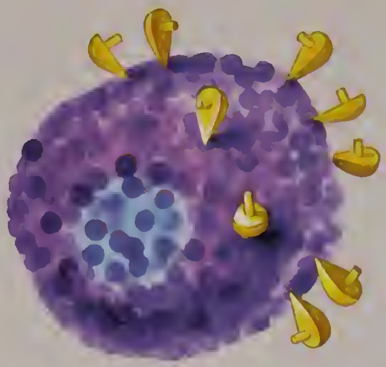
A. H. ROBINS CO., INC., RICHMOND, VIRGINIA

In theory, allergy works like this...

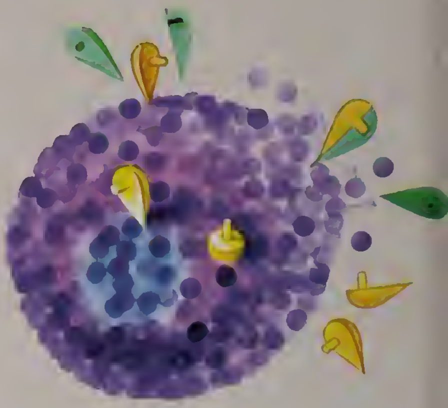
It is generally accepted that a complex antigen-antibody reaction underlies allergy. The reaction may be visualized in this simplified graphic form:



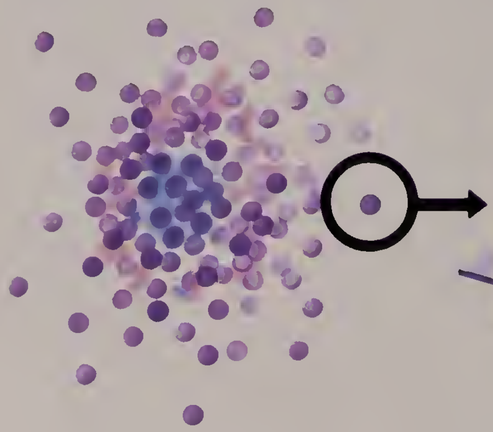
At first exposure to antigens (green) specific antibodies (yellow) are formed chiefly by plasma cells.



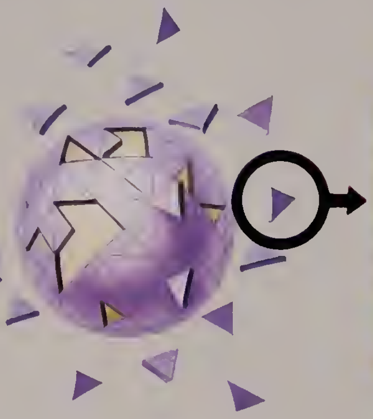
Circulating antibodies in the blood stream may become attached to mast cells in the tissues.



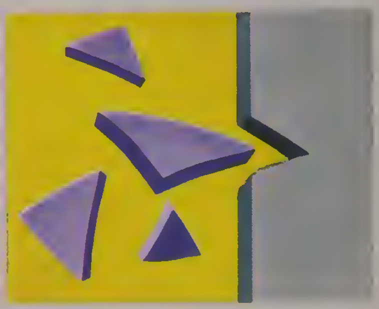
If the same *antigen* again enters the body and reacts with *antibodies* attached to cell walls, disturbances occur. The cell disrupts...



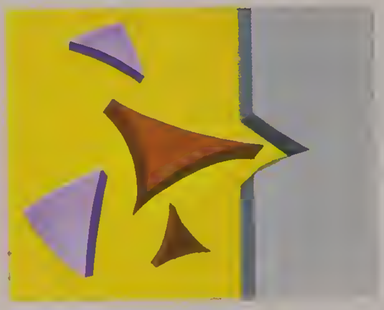
...depositing granules containing bound histamine or histamine-like substance in intercellular spaces.



Calcium ions and enzymes act on the granules breaking the binding and releasing histamine or histamine-like substance.



Theoretically, this liberated histamine (purple) acts at *receptor sites* in target tissues resulting in allergic manifestations.



Antihistamine (orange) is believed to compete with histamine at the receptor sites in target tissues—thus counteracting allergic effects.

In allergy, this antihistamine works with no more sedation than placebo*

The therapeutic response to Dimetane (brompheniramine maleate) is eloquent proof that a *potent* antihistamine does not have to be a sedative, too. You may expect unsurpassed relief of symptoms promptly in most types of allergy because Dimetane (brompheniramine maleate) *works* with a very low incidence of side effects. Indeed, as shown in a double-blind crossover study, with no greater incidence of sedation than placebo.*

*Schiller, I. W. and Lowell, F. C.: New England J. Med. *261*:478, 1959.

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Dimetane® Extentabs®

(brompheniramine maleate, 8 mg. & 12 mg.)

BRIEF SUMMARY: Indications: Dimetane (brompheniramine maleate) is a potent antihistamine effective in a wide variety of allergic states.
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Precautions: Until response is determined, patient should be cautioned against engaging in mechanical operations requiring alertness.
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Side effects: Slight drowsiness may occur and, rarely, allergic or idiosyncratic reactions, generally developing after 1 to 4 doses of the drug.

Contraindications: Previous allergic or idiosyncratic reactions to meprobamate contraindicate subsequent use.

Precautions: Should administration of meprobamate cause drowsiness or visual disturbances, the dose should be reduced. Operation of motor vehicles or machinery or other activity requiring alertness should be avoided if these symptoms are present. Effects of excessive alcohol may possibly be increased by meprobamate. Prescribe cautiously and in small quantities to patients with suicidal tendencies. Massive overdosage may produce lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse. Consider possibility of dependence, particularly in patients with history of drug or alcohol addiction; withdraw gradually after prolonged use at high dosage. *Complete product information available in the product package, and to physicians upon request.*

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Supplied: 400 mg. scored tablets, 200 mg. coated tablets.

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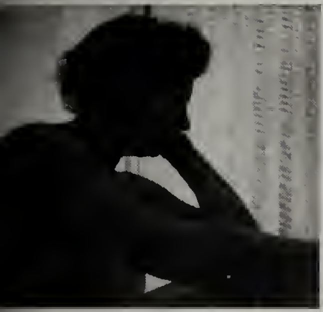
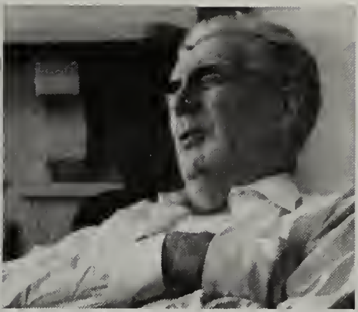


The insomniac

The tense, nervous patient



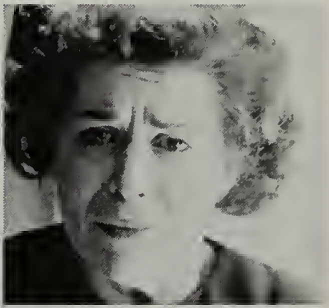
The heart-disease patient

The surgical patient

The girl with dermatosis

Tension headache

The woman in menopause

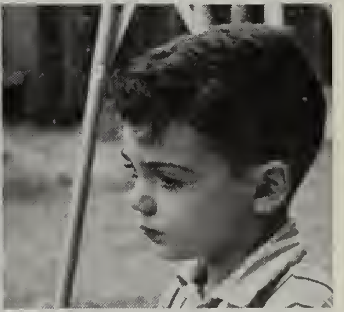


Anxious depression

Premenstrual tension

The agitated senile patient

The alcoholic



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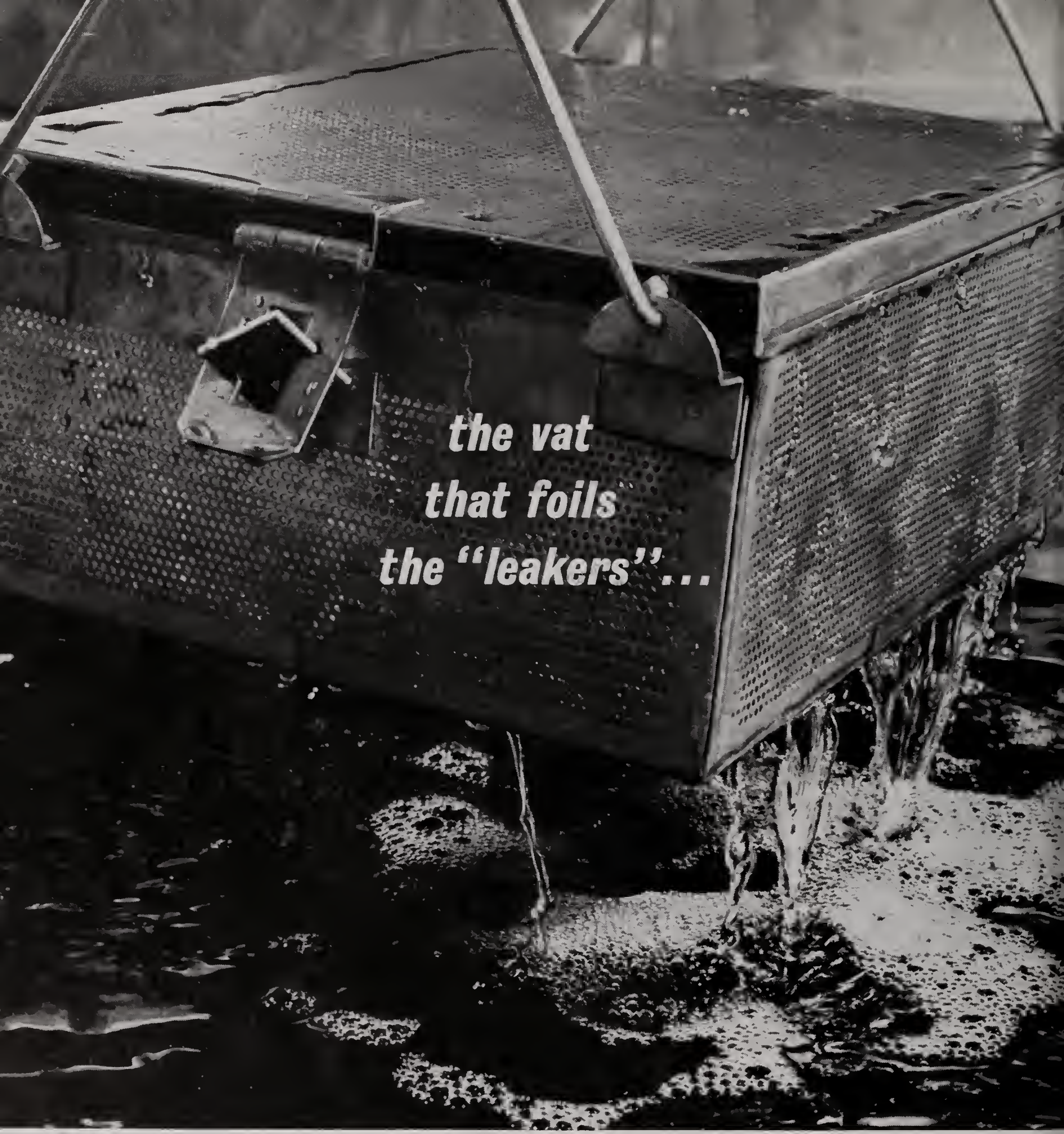

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MEDICAL ANNALS
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April 1964
VOLUME XXXIII • NUMBER 4

Rabies: A Summary of Recent Contributions to the Literature (July 1958–June 1963)*

B. HUGH BUFF, M.D.
San Diego, California

In San Diego County, California, and the neighboring area of Tijuana, Mexico, approximately 150 animals have recently been found to be rabid. This epizootic has focused local attention on a disease with a history as dramatic as it is fearful. Rabies has long been a subject of considerable interest to both physicians and laymen. Its symptoms are agonizing; in man, once begun, its outcome is invariably fatal; and the possibility of an outbreak in wild or domestic animals is a constant threat. These considerations prompted undertaking of the present study.

History of the Disease

Rabies was accurately described as early as 2000 B.C.[1] It was first recognized as a disease entity by Aristotle in 322 B.C.[2, 3] In the nineteenth century Pasteur reported the viral nature of rabies and developed a vaccine to combat it; these discoveries still stand as the greatest contributions made to our knowledge of the disease.

Vivid descriptions have been published concerning human exposure to rabies during the Pasteur era. At that time patients were sent to Paris to receive vaccine therapy from Pasteur himself. Early methods of control of rabies in animal vectors consisted of such measures as muzzling animals, collaring, and later registration. In England these practices resulted in complete eradication of the disease; the last case reported in that country was in 1902.[4]

Stories have been told of such wild animals as foxes being kept in a household as pets, with subsequent development of rabies in both animal and owner.[5] In 1910 a professor from the Department of the Interior was commissioned to investigate the skunk problem in America. He referred to a variety of this animal as the "hydrophobia skunk" and described it as having a white stripe down the back and spots on both sides. Skunks became such a danger to cowboys sleeping outside on the ground that a device called a "skunk boat" was developed. The "boat" consisted of a canvas sheet fashioned in such a manner as to protect its owner from attack by rabid skunks. The device was used as late as the 1920s.[6]

The end-of-summer period which we call the "dog days" was so named because it was believed that this was the time when dogs were most apt to have seizures caused by rabies. It has subsequently been shown that susceptibility to rabies is not limited to any particular time of year.[1]

Etiology

Rabies is caused by a neurotropic virus, not readily filterable, measuring 100 to 150 millimicrons in diameter. The virus can live for months when stored at −56°C to −72°C, or for days at room temperature in tissue. When not in tissue the virus is readily inactivated by heat and can be destroyed by drying, sunlight, ultraviolet light, or chemicals. It is resistant to phenol, the sulfa drugs, and antibiotics. Two different types of virus have been described: (1) street virus, which comprises the strains of rabies isolated from infected animals in nature, and

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* Thesis prepared in partial fulfillment of requirements for advancement to Fellowship in the American College of Physicians.

(2) fixed virus, strains of the virus so modified by passage in experimental animals that the incubation period is shortened and constant. Fixed strains lose the ability to form Negri bodies and are usually less virulent when injected peripherally into animals.[3, 7, 8]

Problems encountered in investigation of the rabies virus include its instability and the difficulty of propagation in tissues in vitro. However, the virus has been grown on human fetal lung tissue.[9] It has also been successfully grown in hamster tissue. Fixed virus was used for this purpose, and the cells were harvested at intervals of from 2 to 24 days after infection. They were then epilated by centrifugation, frozen, and prepared for examination by the electron microscope. The stain was prepared by the negative technique. Particles were noted and believed to be rabies virus for several reasons:

1. Similar particles were not noted in control kidney tissue.
2. Lysates from which the specimens were prepared were highly infective.
3. Virus identity was established by serum virus neutralization tests with hyperimmune antirabies serum.
4. The structures resembled in several respects those of known viruses of the myxo group.

The structure is similar in appearance to that of measles virus and consists of a membrane enclosing granular filamentous elements (figure 1). The membrane is studded on its outer surface with fine projections. When it is broken there is a release of inner particles which appear as a continuous filament or wavelike ribbon, consisting of subunits repeating themselves.[10] Too few cells are affected for gross cytoplasmic effects to be discernible.

Pathologic Considerations

Histopathologic examination shows the lesions of rabies to be modest as compared to the symptoms. Mild-to-moderate deterioration of the neurons attracts microglia around their peripheries. Infiltration of perivascular spaces and the formation of foci with small round cells are not uncommon. Intracytoplasmic inclusion bodies develop in the cytoplasm of neurons in the hippocampus, gasserian ganglia, cerebellum, and other areas. These inclusion bodies are well demonstrated by special stains. The bodies were first described in 1903 by Negri and bear his name.[3, 11, 12] The virus has been found in nervous tissue, in salivary glands, and (in lesser concentrations) in the mammae, pancreas, and lacrimal and adrenal glands. It has not been reported to be present in the sex glands.

In the street-virus infected dog the mandibular gland contains more virus by fresh weight than does the brain. The dog's submaxillary gland virus has a high stability. In 1 study the submaxillary glands were crushed, treated, and centrifuged; the sediment fraction retained its ability to incite rabies. It was noted that the mandibular glands may contain 10 to 100 times more infective rabies for mice than the equivalent of fresh-weight brain tissue. There have been no reports in the literature that the salivary gland has been involved unless there is also involvement of the central nervous system.[8, 13, 14]

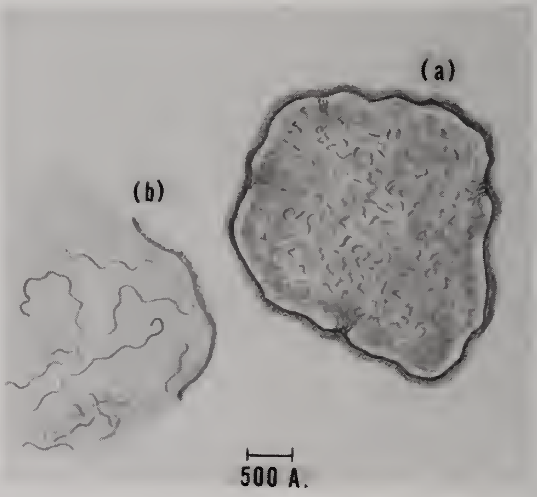

FIG. 1. Drawing taken from electron microscope photograph of rabies virus particles—(a) intact, (b) fragmented.

Studies in bats have revealed that the virus is present in the bat heart, liver, kidney, and spleen; it is also present in higher titers in the salivary gland, brain, and brown adipose tissue (often referred to as the bat's hibernating organ).[15, 16, 17]

On postmortem examination of 1 patient who died of rabies there was found to be 12 inches of gangrenous ileum. In this case symptoms before death were partially referable to intestinal obstruction. No virus studies were performed on the involved bowel.[18]

Pathogenesis

The incubation period of rabies is from 10 days to 1 year, but symptoms usually appear within 25 days. The virus remains at the inoculation site for about 4 days; by the second day it can be found in the spinal nerves, and by the fourth it can be isolated from the central nervous system. In that location it multiplies and spreads via the peripheral nerves to the salivary glands, where it is secreted in the saliva.[19] Infection through the unabraded human mucous membrane seems to be possible.[20]

In 1 study the virus content of various organs in mice was estimated following inoculation and at various intervals thereafter. Shortly after intracerebral inoculation the virus forms a non-neutralizable complex by combining with susceptible cells. The shorter the distance between the inoculation site and the central nervous system, the shorter the incubation period. It is hypothesized that the virus travels along or in the nerves from the periphery to the central nervous system and vice versa.[21, 22]

The theory that the virus travels along nerves is supported by these findings[21]:

1. No viremia has been noted.
2. The incubation period is shorter when virus is injected in muscles near central nervous tissue.
3. When virus is injected into the hind leg of the laboratory animal it is found in the spinal cord earlier than in brain tissue.
4. The virus has been found to be present in the peripheral nerves.

Vectors and Means of Transmission

In 1958 there were 4,814 laboratory-confirmed cases of rabies in the United States. Of these 2,075 were in wild animals, 1,643 in dogs, 753 in livestock, 353 in cats, and 6 in human beings.[23] In Canada, from April 1, 1958, to January 1, 1959, the distribution of laboratory-confirmed cases of animal rabies was as follows[24]:

Animal	*Number*	*Approximate Per cent of Total Incidence*
Fox	1,066	47.5
Cattle	756	33.2
Skunk	101	4.5
Cat	96	4.3
Sheep	91	4.1
Dog	71	3.2
Horse	30	1.3
Others	31	1.3

The incidence of rabies in dogs as compared to other animals is usually low in the Canadian group.

In 1958 6 human beings died of rabies in the United States. Two of these patients had been infected by stray dogs, 1 each by a fox, a bat, and a skunk, and 1 by an unknown source. The dog is known to be the main source of human exposure.[25] The principal wildlife vectors are the gray fox, the red fox, the small spotted skunk, and the large striped skunk. The coyote is not a vector to any appreciable degree. Some raccoon rabies has been noted in Florida; and the first reported case of rabies in a flying squirrel was found in Florida in 1961.[23, 26]

Since the fox is one of the major vectors of rabies, a project was recently undertaken in the Southeastern United States to determine the fox population, its reproduction and death rates, the extent of its movement, and the prevalence of rabies in random samples. Procedures for control of rabies in foxes were also evaluated. It was found that 100 foxes will produce 215 pups in a year. Life expectancy is about 1 year for a pup, and a year and a half for an adult. Foxes probably do not migrate far. They are most abundant in areas supported by cultivation. Of the foxes trapped 3.1 per cent had rabies. It was found that the best way to reduce the fox population is to have more pasture and forest land and fewer small fields, as is now the trend. Poisoning is not sufficiently selective. Trapping is useful in some areas, but only temporarily.[27]

In California during the period 1950–1959, 11,571 animals were examined in laboratories, and 9 per cent were found to be positive for rabies. These included skunks, cattle, bobcats, goats, foxes, badgers, horses, bats, sheep, dogs, raccoons, coyotes, and cats. Negative animals examined in the same laboratories included gophers, squirrels, rats, mice, hamsters, rabbits, chipmunks, opossums, muskrats, monkeys, weasels, moles, guinea pigs, deer, chinchillas, swine, bear, mink, porcupines, and mountain lions.[28] Human rabies transmitted by a rodent has never been reported.[29] However, the effect of rodents on rabies transmission is of possible importance. In 1 study kittens with very little chance of exposure were reported to be positive for rabies, suggesting the existence of a small animal reservoir when such animals as rats and mice are used for food, despite the infrequent occurrence of rabies in rodents.[30] Although birds are also susceptible, they are less so than mammals.[20] It is considered unlikely that rabies exists in wild birds in their natural habitats.[8]

The first bat rabies was reported in 1908 as occurring in vampire bats in Brazil. The fruit-eating bat in Brazil was next incriminated. In 1936 rabies infection in both fructivorous and insectivorous bats was reported in Trinidad. The insectivorous type is the only kind of bat found in the United States; however, the vampire bat is found in 3 of the Mexican states along the U.S.A. border. The insect-eating bats either are free-living in trees and bushes or live in colonies in caves, belfries, attics, etc. Rabies in the insectivorous bat in the United States was reported for the first time in Florida in 1953. Since then 330 cases of bat rabies have been reported in 22 states.[18]

Only 6 cases of human attack by the bat have been reported; 3 of the bats were rabid. One patient died of rabies 3 weeks after a bat bite, but no specimen of the bat was available. One patient died in India after the bite of a bat. The vampire bat is the 1 vector which has been proven to have infective saliva without coëxistent clinical signs of the disease or subsequent death. It is thought that nonsanguineous bats may also be symptomless carriers, but this has not been proved. In past studies serum from bats of several different species was shown to have rabies-neutralizing antibodies, suggesting that the animals had survived natural infections. Prolonged hibernation may enhance the ability of the bat to recover from such natural infection. Bats have been taken away from dogs or cats which did not subsequently develop rabies, although the bats were proved rabid. In the laboratory, when bats have bitten mice the occurrence of infection in the mice has been the exception rather than the rule.

Ticks feeding upon rabid animals have been found to harbor the virus. Available evidence indicates that the hazard of direct transmission of rabies from bats to man is minor compared to that of transmission from other animals. However, 2 persons who entered a cave in Texas known to be infested by rabid bats subsequently died of laboratory-proven rabies; 1 of these cases occurred in 1956, the other in 1958. No history of bite was noted, although both patients were accurate observers. A study was subsequently undertaken in the same cave. Various animals were placed in the cave, in cages providing varying degrees of protection. Some of the animals developed rabies when there was no possible means either of bats biting the animals or of insects entering the cages. This suggests that an airborne medium such as an aerosol may be a mechanism of rabies transmission.[5, 8, 17, 31-41]

The rabies virus is contained in the saliva in about 72 per cent of rabid animals. Any abnormal behavior of animals should be viewed with suspicion.[19] Concerning livestock, it is stated in an Indian report that drinking milk from an infected cow is not considered to constitute exposure if the milk has been boiled. Even if the milk is raw, the risk is slight, but vaccine therapy for 7 days is suggested. Domestic livestock exposed to the bite of a rabid animal is considered acceptable for slaughter for eating purposes within 1 week of the bite or after 6 months have elapsed, but not during the intervening period.[8]

Geographical Distribution

Climate seems to have no effect on rabies, since the disease is seen in both arctic and tropical countries. In the United States, the states with the highest numbers of reported cases have been Texas, Kentucky, Indiana, Georgia, Alabama, Virginia, Minnesota, Wisconsin, Arizona, and Iowa. Total cases in the United States were as many as 10,872 in 1 year (1946); this figure included 22 cases of human rabies. The number of reported cases has fallen gradually, and in 1958 only 4,814 cases were reported, including 6 human cases. In recent years, however, the number of cases of rabies in wildlife has doubled.[23, 42, 43]

Hawaii is rabies-free, as are all of Great Britain and Australia.[3] Rabies in sledge dogs in Greenland was first described in 1859. In the period 1957–1960 there was near-famine among the Greenland Eskimos because of the loss of the indispensable dogs. In the first 4 months of 1960 over 1,000 dogs in Greenland died of rabies.[44] In Trinidad the last human case of rabies occurred in 1937; yet animals continue to die of the disease, and rabies-positive bats are still found.[45] In South Africa 7 human deaths from rabies were reported in 1961, although as a rule only an occasional case is recorded. There has been as yet no report of bat rabies in Africa.[14] Israel has a large wild-dog population, as well as considerable numbers of jackals, foxes, and wild cats; 7,000 to 8,000 persons are scratched or bitten by wild animals annually. The percentage of these animals with proven rabies has varied from 0.9 to 4.4.[46]

Unusual Symptoms in Animals

After becoming infected with rabies, skunks may be prone to attack human beings.[12] In cattle there are no signs of the disease during the prodromal period. Cattle saliva may be positive for 5 days before the onset of symptoms; the disease may then manifest itself by paralysis, a ferocious or otherwise changed facial expression, abnormal carriage of the ears, and a characteristic bellowing.[19]

The consensus is that dogs begin to shed the rabies virus in their saliva only during the latter part of the incubation period 2 or 3 days before the onset of symptoms. For this reason it should not be necessary to keep a suspect dog under observation for more than 7 to 10 days.[29] In 1914 tests were undertaken on 22 dogs with laboratory-induced rabies. In only 1 case among these animals did saliva testing indicate infection before the appearance of symptoms. More recently, however, there has been some difference of opinion as to how long saliva may be positive before the onset of symptoms.[47] To settle this point conclusively, a controlled study has been under way for some time at Tulane University; the authors hope to report their findings in the near future.[48]

In 1 reported case a fox was noted to hunt and eat normally, although the disease was subsequently proved to have been present at that time in both salivary tissues and brain.[49] However, in another case a fox closed its jaws around the tail of a pointing bird dog; the fox had to be killed before it would release its prey. Another fox, attacking an elderly Negro, attached itself to the man's nose and upper lip so firmly that it held on until it was choked to death. These foxes were rabid, and the subjects of both bites received immunization treatment.[50]

Incidence in Man

Man is less susceptible to rabies than foxes, skunks, or cattle. The authors of 1 survey indicated that the death rate in humans not treated after known exposure to rabies varies from 20 to 75 per cent.[51] In 1958 answers to World Health Organization questionnaires revealed that there were 865 deaths from untreated rabies in humans. In 500,000 cases of exposure in which treatment was administered 82 patients died during or after treatment; 47 developed paralytic complications after vaccination. In the United States since World War II the number of human fatalities from rabies has ranged from 3 to 40 per year.[1]

A study of human exposure to rabies in Nebraska in 1959 revealed that males were exposed twice as often as females. Fifty-seven per cent of reported exposures occurred in persons under the age of 15. The group of human beings found most likely to be exposed consisted of males under the age of 15 during the months of June, July, and August. Thirty-five per cent of exposures occurred in the households of pet-owners. Six per cent of all injuries in children under the age of 17 were from animal bites; 11 per cent of such injuries were incurred while handling sick or injured animals.[52] In another study nearly 50 per cent of animal bites were reported to be on the legs and approximately 40 per cent on the arms.[46]

Signs, Symptoms, and Laboratory Findings of Rabies in Man

Rabies in man is manifested by a prodromal phase of 2 to 4 days, consisting of fever, headache, malaise, sore throat and nausea, with a temperature 2 to 3 degrees above normal. The patient may have tingling, numbness, irritation, or pain at the site of the bite. Despite decreased local sensation the patient may complain of drafts affecting the skin; sensitivity to light and noise is also noted. Objective findings include tics, increased reflexes, rapid pulse, and overactive facial expression.

The second phase consists of excitation of gradual onset, manifested by nervousness, anxiety, apprehension, and a sense of impending death. The patient is hyperesthetic. On sight, sound, or smell of fluids, painful spasms of the throat muscles are noted. Salivation and convulsions are common. The patient may be able to swallow saliva but not other fluids. Although there is maniacal behavior with fighting, biting is rare. (In 1 case, however, an escaped patient bit 20 to 30 policemen, nurses, and doctors before being restrained.[53]) These periods are interspersed with periods of quietness and lucidity; and in some cases of rabies the second phase is never manifested.

If the patient survives the second stage of the disease, he enters the third, or paralytic phase. This consists of quite severe apathy, stupor, coma and death, preceded by difficulty in swallowing, urinary retention, and obstipation.[7] In 1 reported case laboratory tests revealed a white blood cell count of 16,300, with 91 per cent polymorphonuclear cells and 1 segmented cell. The spinal fluid was negative, except for a protein of 120 mg. per cent.[18] In an 11-year-old boy with nuchal rigidity spinal tap revealed 262 cells, 95 per cent being lymphocytes. Spinal fluid protein was 65 mg. per cent.[12]

In 1 case an electrocardiogram revealed a wandering pacemaker not noted on the cardiogram taken the day before. Postmortem examination revealed complete atheromatous occlusion of the left anterior descending coronary artery as the probable cause of the cardiographic abnormality.[38] The electrocardiogram in another case of human rabies revealed nonspecific T and S-T segment changes. At autopsy a brown mottling was found over the anterior aspect of the heart, and sections showed acute exudative myocarditis. Negri bodies were found in the brain. Although the virus was not isolated from the heart at postmortem examination, this was presumed to be a case of rabies viral myocarditis, the first such to be reported.[54]

Bradycardia, glycosuria, and acetonuria are findings typical of rabies.[37] The differential diagnosis includes rabies hysteria, bulbar poliomyelitis, encephalomyelitis, encephalitis, toxoplasmosis, and tetanus. Rabies hysteria may occur in the first 10 days after exposure in the patient who has seen a case of rabies. There is no fever, the head is not jerked back, water is ejected although there has been no attempt at swallowing and the outcome is not fatal.[7, 8, 53, 55]

Laboratory Diagnosis

Rabies is diagnosed by a history of exposure, clinical signs and laboratory findings, and the symptoms of the terminal illness. The laboratory confirms the presence of the virus. No gross lesions are pathognomonic for rabies. When specimens are submitted to the laboratory for examination, the suspected animal's head should be kept cool and delivered promptly by the fastest available means; freezing and dry ice should be avoided. The animal should not have been shot through the head or poisoned.[7] The laboratory techniques used in diagnosis are the identification of Negri bodies, the demonstration of the virus by the fluorescent antibody technique, and rabies virus isolation with animal inoculation.[19] Complement fixation tests are also used, the antigen being prepared from submitted tissue. However, since a negative complement fixation test does not preclude rabies, the more widely accepted techniques should be used to determine the presence or absence of the disease.[15]

In 1958 it was reported that the flourescent antibody technique could be used to stain street- and fixed-rabies virus in the brain tissue of experimental mice. In testing 825 fresh or frozen specimens by this technique over a 13-month period there was 100 per cent agreement with mouse inoculation tests (70 positives in 70 positive animals). Negri-body examinations agreed only 98.3 per cent with mouse inoculation findings, the Negri-body test being false-negative in 4 cases and false-positive in 10 cases. In another series of fluorescent antibody tests there was only 1 false-positive in 300 slides. There are, however, limitations to this test:

1. The laboratory must make up its own reagents; the conjugate reagent may or may not be suitable, and this cannot be predicted until it has been made up and tested.
2. Personnel must be trained to read the slides.
3. If the specimen is glycerinated instead of fresh or frozen, the test is not 100 per cent accurate.

Nevertheless, the fluorescent antibody technique has both speed and specificity and gives a positive or negative answer sooner than animal inoculation. Because it is more specific than the Negri-body search, the decision as to whether or not to treat the patient can be made sooner.[15, 56, 57, 58] The fluorescent antibody technique has demonstrated rabies virus in tissue cultures, and may be of value in the future in tissue cultures of the virus for diagnostic purposes.[9]

In San Diego County, California, the Health Department laboratory uses only the smear and fluorescent antibody techniques in testing for rabies.[59] In some areas of the world laboratory facilities are still lacking. In South Africa, for example, there is still for all practical purposes no rabies diagnostic laboratory.[14]

Rabies Control Programs and Their Effectiveness

In general, effective rabies control consists of[2, 7, 19, 23, 42, 51, 60-66]:

1. Mass dog immunization (with as high as 70 per cent of the canine population vaccinated in a 1-week period).
2. Elimination of all stray dogs.
3. Reduction of wildlife vectors by trapping programs, especially for skunks and foxes.
4. Such measures as publicity, education, and proper handling of bitten animals and bitten humans.

Two effective vaccines for dogs are available: phenolized nervous tissue containing the killed virus and the LEP Flury strain, modified, made from nervous-system virus. Immunity lasts at least 2 years, and Flury is the vaccine of choice because it produces profound and long-lasting immunity. In New York State only 1 death from the vaccine was noted in 350,000 dogs, and only 9 dogs of those vaccinated developed rabies. A single intramuscular Flury injection will immunize a dog for 4 years and probably for life. It should not, however, be used for dogs of less than 3 months of age or cats of less than 6 months. Since dog vaccination is still not 100 per cent effective, a dog must be observed if it bites a person, even if it has already been vaccinated.[7]

Strays dogs should be impounded for a few days; then, if not claimed, they should be destroyed. Licensing allows an ownership record to be kept and gives a more accurate dog census. Because cats are defined as wild animals by most courts they cannot normally be licensed; however, 3 cities in the United States now require cat licensing.[61]

In addition to trapping, gassing and poisoning are used to reduce the number of wildlife vectors. To be effective, all such measures must be carried out over a broad area for a long period of time.[7]

Animal, especially dog, controls of any kind are still extremely unpopular.[2] In San Diego County 3 rabies control officials recently had their lives threatened because pets running loose were being picked up.[67] School children should be taught proper handling of animals. Certain points should receive particular emphasis. These include avoiding aggravation of animals, avoiding sick or injured animals, not disturbing animals while they are feeding or while caring for their young, and not holding animals near the face.[46]

Treatment in Man

Preëxposure treatment. Immunization procedures for high-exposure groups, such as veterinarians, animal handlers, sportsmen, campers, field naturalists, laboratory workers, etc., are being developed, so that primary immunization will be achieved prior to exposure.[15, 68-72] Types of vaccine and dosage schedules are still under study.[73]

Postexposure treatment (when and how to treat). The World Health Organization has developed a chart which is universally used as a guide in determining if exposure to rabies has occurred (table 1).[74, 75] In evaluating bites, those on the head, face, and upper extremities are considered most hazardous, as are multiple bites. Bites on the trunk are the least dangerous, and bites through clothing are less dangerous than those on uncovered skin. Although not every rabid animal has rabies-infected saliva, human beings bitten by bats should be considered to have been exposed to rabies and treated at once without waiting to see whether or not the bats are proven to be rabid.

Rabies vaccination of an animal does not influence the indication for prophylaxis. The heavy winter clothing used in the North is good protection from animal bites; however, although a bite through clothing is less likely to be lethal, such a bite cannot be considered as automatically constituting no exposure. A rabid lick on intact skin is no exposure; licks on mucous membranes, however, represent exposure, as do rabid claw scratches.[23, 24, 36, 40, 51, 74, 76]

Local wound treatment consists of encouraging bleeding, washing the area with soap, and swabbing with 1 per cent aqueous Zephiran® Chloride. (Fuming nitric acid was used in the past, but aqueous Zephiran is equally effective.) Immediate suturing of the wound is not advised, if it can be avoided. After testing for sensitivity, not less than 5 c.c. of hyperimmune antirabies serum should be injected in and around the wound. As for any wound, routine use of antibiotics and antitetanus therapy should be considered.[7] Powdered gamma globulin may be of value; the development of this form of gamma globulin has been reported by the Russians. It is made from the serum of horses immunized with rabbit-brain fixed virus. The Russian report indicates that if this powder is applied locally within 15 to 30 minutes after the bite there is a marked preventive effect in the majority of experimental animals. If applied later, the effect is inconsequential.[7, 15, 18, 20, 76-79]

Treatment should be instituted less than 24 hours after a bite from an infectious rabid animal. The recently developed rabies antiserum should be used immediately to give passive immunity and to prolong the incubation period of the rabies virus. This is especially important for cases of severe exposure, in which a single dose of 0.5 ml./Kg. should be given intramuscularly in several sites, as well as in and around the wound. Further doses should not be given in such cases, as they may interfere with active immunization when the course of vaccine is given. The use of this purified high-titer immune serum gives promise of reducing treatment failures.

In Iran, which has a wolf-rabies problem, there has been a 40 per cent mortality rate in humans bitten by wolves in spite of apparently adequate courses of vaccine therapy (14 to 21 days of treatment). Giving the antiserum has greatly reduced this mortality rate. One Iranian boy bitten on the head so severely that the animal's fangs penetrated the skull, giving an intracerebral injection of the virus, survived with treatment consisting of antiserum and a course of vaccine.[1, 15, 23, 29, 51, 53, 75, 76, 77, 80, 81]

Because rabies antiserum comes from horses, serum reaction occurs in 15 to 25 per cent of treated cases, and steroids may be needed to alleviate reactions. One fatal reaction to antiserum, in a child not tested for sensitivity, has

TABLE 1: Rabies: Guide for Specific Postexposure Treatment

Nature of Exposure	Status of Biting Animal		Recommended Treatment (in Addition to Local Treatment)
	At Time of Exposure	During Observation Period of 10 Days	
I. No lesion; indirect contact only	Rabid	—	None.
II. Licks:			
(1) Unabraded skin	Rabid	—	None.
(2) Abraded skin, scratches, and abraded or unabraded mucosa	(a) Healthy	Clinical signs of rabies or proved rabid	Start vaccine at first sign of rabies in animal.
	(b) Signs suggestive of rabies	Healthy	Start vaccine immediately; stop treatment if animal is normal on fifth day after exposure.
	(c) Rabid, escaped, killed, or unknown	—	Start vaccine immediately.
III. Bites:			
(1) Mild exposure	(a) Healthy	Clinical signs of rabies or proved rabid	Start vaccine at first sign of rabies in animal.
	(b) Signs suggestive of rabies	Healthy	Start vaccine immediately; stop treatment if animal is normal on fifth day after exposure.
	(c) Rabid, escaped, killed, or unknown	—	Start vaccine immediately.
	(d) Wild (wolf, jackal, fox, bat, or other wild animal)	—	Hyperimmune serum immediately, followed by vaccine.
(2) Severe exposure (multiple; or face, head, hand, or neck bites)	(a) Healthy	Clinical signs of rabies or proved rabid	Hyperimmune serum immediately; start vaccine at first sign of rabies in animal.
	(b) Signs suggestive of rabies	Healthy	Hyperimmune serum immediately, followed by vaccine; vaccine may be stopped if animal is normal on fifth day after exposure.
	(c) Rabid, escaped, killed, or unknown	—	Hyperimmune serum immediately, followed by vaccine.

NOTE: The above schedule applies equally, whether or not the biting animal has been previously vaccinated. (Expert Committee on Rabies: WHO Technical Report Series, No. 201, 1960.)

been reported.[29] Human gamma globulin from persons vaccinated with duck-embryo and Flury HEP vaccine has been produced and may prove a substance less antigenic to man than horse antirabies serum.[82]

Since the days of Pasteur courses of daily vaccine therapy have been used to prevent the development of rabies in man following exposure. The 2 most commonly used vaccines are of the killed-virus type, Semple vaccine and duck-embryo vaccine. Fourteen daily injections are given, but if the bite is severe a 21-day course of vaccine is sometimes advised. The vaccine used most extensively in man has been a suspension of rabbit brain infected with fixed rabies virus (the Semple vaccine). More recently, duck-embryo vaccine has been developed; since it does not produce any of the severe central nervous system reactions seen with Semple vaccine, its use is becoming widespread. The potency of duck-embryo vaccine is nearly as great, if not as great, as that of Semple vaccine. The duck-embryo vaccine dosage is 1 c.c. daily, given subcutaneously. If antiserum has been used, some authors suggest giving booster injections of vaccine 10 and 20 days after the last of the daily doses. Vaccine can now be freeze-dried, with preservation of antigenicity and increased stability in storage.

No particular strain or type of vaccine is recommended by the Expert Committee on Rabies of the World Health Organization. If sensitivity to egg protein, chicken, or chicken feathers is known, the avian-embryo vaccines should not be used.[15, 20, 75, 82-87]

If a person who has previously received vaccine is bitten 1 to 3 months after the course of treatment, no further vaccine is given. If exposure occurs 3 to 6 months after the previous course of vaccine, 2 doses of vaccine given a week apart are considered to be adequate boosters. If more than 6 months has elapsed between the first course of vaccine and the new exposure, it is suggested that the full schedule be repeated.[7] However, one author suggests that if a patient has had a full course of duck-embryo vaccine (i.e., 14 daily doses) within the last 5 to 10 years, probably only 2 boosters will be needed.[69] A single-dose booster in persons who have had previous vaccine treatment gives a rapid antibody response, but not all such persons have booster response in the effective range.[15, 76]

Almost all patients receiving Semple vaccine, prepared from rabbit-brain tissue, develop some type of reaction, usually starting at about the seventh day of treatment. Local reactions may occur even after that time at previous injection sites. Some patients develop hypersensitivity reactions with the first dose, especially if they have received previous courses of vaccine. The most serious reaction is an iso-allergic encephalitis, consisting of a demyelinating type of reaction in the patient's central nervous system. One of every 3,000 treated patients develops this; the course varies from mild to fatal, but the overall mortality is 10 to 25 per cent. In patients who survive, residual paralysis is uncommon. The onset of headache, fever, nausea, or lymphadenopathy is indication to stop administration of nervous-tissue vaccine. In Africa the State Department of Health advises hospitalization for patients undergoing treatment with Semple vaccine because of its attendant central nervous system side-effects.[14, 75, 76, 80]

No central nervous system reactions have been reported with the use of duck-embryo vaccine, but local reactions have been noted nearly as frequently as with use of the Semple vaccine. These local reactions are seen in from 33 to 88 per cent of patients treated with the avian type of vaccine; severe reactions, however, are less frequent. Regional lymphadenopathy and occasionally giant urticaria have been seen. There is rare occurrence of a systemic reaction, characterized by malaise, febrile episodes, and chills. In patients who develop a serum-sickness type of reaction antihistamine therapy has proved adequate, and in some of these cases it has then been possible to continue therapy with the same type of vaccine.[15, 51, 69, 75, 80, 83, 84, 86, 87, 88]

In 1 study, which compared various types of treatment and the amount of rabies challenge (as measured in LD_{50} units) in guinea pigs, it was noted that antiserum alone did not have any protective effect against severe challenges; vaccine alone was sufficient to prevent rabies in mild challenges; combined therapy with antiserum and vaccine was superior in protection against challenges of up to 50 LD_{50}; but in challenges of over 300 LD_{50}, no therapy was of any benefit. It is possible that this accounts for treatment failures in humans.[89]

In some reports it has been pointed out that not all vaccines appear to have a constant potency; and studies by different groups have shown some lots of vaccine to be less antigenic than others. These results emphasize the need for development of higher-potency vaccines.[28, 90] ACTH, cortisone, or corticotropin may be used successfully to treat serum or vaccine reactions.[91] However, the use of these drugs may be followed by a suppression of antibody response to the vaccine therapy. ACTH is less apt to cause this suppression than is cortisone. The drugs probably suppress by depressing protein anabolism and hence antibody-formation; their use, therefore, should be avoided if possible.[43, 91] In 1 report of very limited scope it was even suggested from the results of animal studies that the rabies virus might be activated by steriods (e.g., ACTH).[92]

In a report on rabies covering a 10-year period 541 cases of humans bitten by rabid animals were studied. Of these patients 315 received the full series of vaccine treatment, while 106 had no treatment at all. In the treated group 8.8 per cent succumbed to rabies; in the untreated group 48 per cent died of the infection. In a California case of a human bitten by a rabid bat the serum was given according to the recommended dosage, and duck-embryo vaccine was given for 14 days. No steroids were used in therapy. Nevertheless, the patient died of rabies 66 days after exposure. The use of antiserum is therefore not the complete answer to the problem of effective rabies immunization.[18, 80]

Geographic problems in therapy are underscored in reports such as that of several men bitten by rabid animals in Canada. In order to receive treatment these men had to be airlifted from Mould Bay in the North West Territories to Winnipeg, Manitoba.[93]

Treatment of reactions to vaccine and serum. Neuroparalytic complications occur in 1 of every 280 to 1 of every 8,287 persons receiving the rabbit central nervous system type of vaccine, according to various reports. In the United States there have been more human deaths from reactions to vaccine than there have been from rabies itself.[47, 94] The neurologic complications of rabies vaccine fall into 3 categories: (1) peripheral neuritis, (2) acute encephalomyelitis with ascending paralysis, and (3) dorsolumbar myelitis. Other complications include induration and redness at the site of injection and sometimes fever. Patients may develop neurologic complications from the fourth to the fourteenth day of injections. The spinal fluid shows variable degrees of lymphocytosis and an elevated protein level. At autopsy the finding is rather consistently that of a focal demyelinating process involving the spinal cord and brain.[94]

In 91 cases of persons immunized against rabies (22 with duck-embryo vaccine and 69 with Semple-type vaccine) electroencephalographic studies were carried out. In 10 of the Semple-immunized group there was abnormal slow-wave activity; this occurred in none of the duck-embryo group. It was concluded from this that duck-embryo vaccine produces less central nervous system disorder in man than does rabies vaccine grown on central nervous system tissue (Semple type).[95] Since certain patients may be unable to tolerate avian-embryo vaccine, due to allergy, it seems unlikely that rabbit central nervous system preparations will fall into complete disuse. It is therefore important to be sure at the time of exposure that the indication to treat with vaccine is definite.[94]

Treatment of the active disease. Once rabies has developed in man the only treatment is palliative.[8, 96] Isolation, primarily for the patient's own sake, disinfection of saliva and of articles soiled by it, and the use of gowns and rubber gloves are advised. There is no need to quarantine or terminally disinfect the patient.[96] Man-to-man infection has not been proven, but a theoretical hazard exists; masks should therefore be worn by those treating the patient because of possible aerosol dangers.[71]

A study has been made of in vivo inhibition of rabies, myxoma, and vaccinia viruses by beta-phenylserine. This drug had previously been noted to inhibit influenza A and rabies virus in vitro. It is a competitive inhibitor of phenylalanine hydroxylase. Rabies virus (0.03 c.c.) was injected into the brains of mice or the masseter muscles of rats, consistently producing a fatal infection. In tests to determine the toxicity of beta-phenylserine it was found that 1 to 15 mg. per day for 1 month had no overt effect on the rats. However, high doses (20 mg. or more per day) killed the animals. In 1 group the drug was given 3 days before the virus was given, then continued until the first animal died of rabies. In another group it was given 24 to 48 hours after injection of the rabies virus. In untreated animals mortality was 100 per cent. In the treated animals mortality was 20 per cent in the first group and 30 per cent in the second. If the animals were given dl-phenylalanine and dl-tyrosine, the beneficial effect of the beta-phenylserine was nullified. If the beta-phenylserine was mixed with the virus and injected, the animals died as though it had not been given.[97]

Prognosis in Man

In general, less than 50 per cent of bites by laboratory-confirmed rabid animals are followed by rabies in unvaccinated man.[11] However, if the disease is once allowed to start its outcome is invariably fatal.[20] According to some authors, if no treatment at all is given, 20 to 75 per cent of humans bitten by rabid animals will die of rabies.[51] Another report indicates that in treated patients the mortality is 0.2 per cent; in untreated cases of human beings bitten by rabid animals 80 to 90 per cent escape infection.[8] Of the 6 cases of death from rabies reported in the United States for 1958 3 patients had received no treatment, 2 had had 14 daily doses of vaccine but nevertheless died from a short incubation of the rabies virus, and 1 had had 14 daily antirabies vaccine doses plus antirabies serum.[23] Although mortality in human beings is 100 per cent, recovery from rabies has been reported in mice and dogs.[53]

The case of a laboratory worker has been reported in which the patient was bitten on the hand by a guinea pig later proven rabid by Negri-body positive examination. The patient developed sensory changes in the region of the bite on his arm and hand. He was hospitalized with a low-grade fever and "constitutional symptoms." He was given large doses of antirabies serum and blood serum from humans who had recently received Pasteur antirabies treatment. About a week after the beginning of treatment he suffered a severe case of serum sickness but then recovered both from that and from the original illness. The only residual was slight muscular atrophy on the lateral side of his hand near the site of the bite.[53, 88] The Santo Tomas College of Medicine in Manila has reported "several purported cases of recovery from rabies in man." In the same study some persons who had had no previous vaccination or known contact with the rabies virus had been found to have antibodies. These observations raise the question as to whether the findings are due to subclinical infection or to naturally-attenuated strains.[88]

Miscellaneous Experimental Studies

Studies demonstrating antagonistic symbiosis between Type II poliomyelitis virus and an attenuated rabies virus have been reported.[98] Growth behavior of the rabies virus has been studied in glioblastomatous tumors induced with methylcholanthrene in mice. Transplanted tumors in the animals were injected with rabies virus, and the brains of animals with transplanted tumors were also injected. In addition, controls were used. Survival time in the animals having virus-infected tumors did not differ from that of animals with noninfected tumors. Injection of tumors in the brains of normal animals gave negative results in tests for rabies. Only 1 of 8 virus-infected tumors proved to contain live rabies virus when inoculated into the brains of normal animals. It was therefore concluded that rabies virus does not usually propagate in the type of experimental brain tumor used in this study and that the virus is not readily carried to the brain to induce encephalitis. These findings are in contradication to those reported by other investigators.[99]

In 1 study paper electrophoretic studies were carried out on human subjects before and after immunization with sheep-brain vaccine, and also on rabid patients before death. Of the 47 cases 22 had serial follow-up studies. In 12 of 22 cases a new protein band was noted, faster than gamma globulin and beta globulin, but slower than alpha 2 globulin. This was called beta 1 globulin. The band was also seen in the cases of 4 patients who later died of rabies but was not found in control cases. Concentration of this protein was about 10 per cent of the total serum protein. In the 10 who did not show the new band there was an increase in the alpha 1 and alpha 2 globulin. In those who showed the new band the alpha 2 globulin was decreased. This may mean that rabies antibody formation is related to the alpha 2 globulin fraction.[100]

Summary and Discussion

From this review of the literature on rabies over a 5-year period a rather comprehensive understanding of the disease can be obtained. This is due not only to several recent additions to our information but also to the repetition of facts previously learned. Each time an epizootic appears in a specific area the whole subject of rabies is reviewed by clinicians, public health workers, veterinarians, and other persons involved in dealing with the animal epidemic. The World Health Organization has done much to obtain facts from all areas, digest them, and set forth recommendations leading to a better understanding of, and plan of attack on this viral disease. The discovery of a new vector of the disease in the United States within the last 10 years is important. Previously the insectivorous bat found in this country was not known to be a carrier.

The continued search for rapid yet accurate laboratory techniques for the diagnosis of rabies has produced an important new weapon in the fight against the disease, the fluorescent antibody test. If further studies continue to support the feasibility of treating with steroids the dreaded neurologic side-effects of nervous-system tissue vaccine, another important discovery will be confirmed. The quite recent development of avian-embryo vaccine, free of nervous-system antigens, suggests that a large number of the serious reactions to the Semple vaccine may be avoided. The introduction of rabies antiserum is likely to reduce greatly the number of treatment failures; but since failures are still reported even with the use of this method of treatment, the ideal of 100 per cent success in preventing the development of rabies will probably not be reached through addition of this adjunct. Although purification of the rabies antigen is being studied, it is extremely difficult to achieve.[101] However, success in this undertaking may result later in development of more potent vaccines.

It is interesting to note in reports on rabies the wide divergence of opinion as to the probability of infection, as well as to the likelihood of vaccine reaction when the Semple vaccine is used. It is important to realize that both the potency of the virus in nature and the dosage of virus injected in different bites are probably quite variable. Given these variables, it is understandable that the statistics themselves vary. Communication between countries through the world medical literature and the World Health Organization will help in achieving a greater understanding of this world-wide problem. For the world to achieve what has been achieved by Great Britain, Australia, and Hawaii is the final goal, but a goal that still appears far distant.

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The Significance of Nipple Discharge from the Nonlactating Breast*

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All lay cancer literature and films constantly urge women to perform periodic self-examinations of their breasts. They also warn particularly and properly about the appearance of any strange bodily discharge, and especially if this be sanguineous. Because of this increasing education women now seek immediate medical attention upon the first discovery of any nipple discharge from the nonlactating breast.

Nipple discharge, of any type, represents an abnormal change in the ductal and secretory systems of the breast. It may be physiologic and therefore innocuous. It may be pathologic and therefore dangerous. It may be spontaneous or nonspontaneous; it may be a true discharge or false. Thirty years ago Adair[1] stated that "there are few clinical problems which present such a wide divergence of opinion as the subject of the discharging nipple."

An internist may be the first physician consulted by the patient whose initial symptom is discharge from a nipple. In his evaluation of this complaint the internist must consider such factors as the nature of the discharge, the age of the patient, the presence or absence of a palpable mass, the unilaterality or bilaterality of the discharge, etc. In the process of formulating his best counsel for the patient he looks for the opinions of others. In conferring with his medical and surgical colleagues and in consulting the standard texts he is confused by the conflict of authoritative advice and by the complicated diagnostic measures which are suggested. Differences of opinion exist in considering the significance of the discharge. Some place greater emphasis upon the nature of the discharge than upon the underlying lesion. Some are concerned only if the discharge is sanguineous; others report the finding of mammary carcinoma producing a watery nipple discharge. In the treatment of this syndrome some pursue either an uneasy radical course or any uneasy conservative course. Sometimes there is the advice to wait an arbitrary period of time for the development of a mass before deciding upon any definite course of treatment.

Since the number of patients with nipple discharge are too few in one's own private practice of internal medicine and in the medical records library of one's hospital, it seems prudent to study the current medical literature in order to reach some conclusion as to how best to advise the patient who presents herself or himself with a nipple discharge from the nonlactating breast.

Incidence

Only in the surgical literature are there data as to the incidence of discharge from the nipple. It appears both in the analyses of cases studied in surgical breast-disease clinics and in data from pathologic studies of surgical specimens.

Among 5,118 patients who registered at the Johns Hopkins Hospital with breast complaints Campbell[2] found that 55 patients or 6 per cent of the series had the symptom of nipple discharge. Copeland[3] reviewed the case histories of 571 patients with mammary lesions who were examined at Georgetown University. He found that 11.7 per cent of these patients had noted nipple discharge from the diseased breast. In his review of the 2,269 cases of breast disease at the University of Iowa Donnelly[4] found that 9.6 per cent had nipple discharge and that in this group 6.8 per cent were bilateral. He also stated that 0.9 per cent were male. In 1,048 breast lesions surgically removed at the Hospital of the University of Pennsylvania Fitts[5] found a history of breast discharge in 9.3 per cent. Somewhat lesser frequencies were noted by Haagensen[6] who found 5 per cent and Leis[7] who found 5.8 per cent of patients having a discharge.

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* Thesis submitted in partial fulfillment of requirements for advancement to Fellowship in the American College of Physicians.

Lewison[8] studied the records of 2,195 surgical breast cases at the Johns Hopkins Hospital and found that 5.2 per cent had nipple discharge. Hinchey[9] found this percentage was 8.3 per cent among the 1,051 cases at the Massachusetts General Hospital. McLaughlin[10] found a very low figure of 3.8 per cent with nipple discharge when he studied the histories of 1,082 cases personally operated upon for breast disease.

From this group of approximately 14,000 reported cases of surgical breast disease an average of 7.7 per cent had nipple discharge as one of the signs of the disease. Less than 0.9 per cent of these were male patients.

Frequency data can also be gathered from the surgical literature reporting on breast cancer. Copeland[3] found nipple discharge in 10.3 per cent of his patients with cancer of the breast. He found the average age to be 49. Haagensen[6] found this figure to be 1.4 per cent among the 946 cases of breast cancer at the Presbyterian Hospital. In his personal series of 546 patients with cancer 3.8 per cent had nipple discharge. Harnett[11] in his statistical report on 2,529 cases of breast cancer found a history of discharge from the nipple in only 2.2 per cent. Hinchey[9] in his study of 742 cancer specimens found that 3.2 per cent of the patients had had discharge. Wolpers[12] stated that only 1.2 per cent of 414 patients in his group had this sign. Lastly Treves[13] found that in 549 cases of breast cancer in women 35 years of age or younger there was nipple discharge in 5.5 per cent.

From this accumulated group of 5,751 patients with breast cancer, one may say that nipple discharge occurred in approximately 3.9 per cent.

Etiology

Most cases of nipple discharge are due to duct papillomata, carcinoma, or chronic cystic mastitis. Other less frequent causes are Paget's disease, inflammatory lesions, traumatic lesions, hormonal dysfunctions, and sarcoma.

Campbell[2] in his analysis of 55 breasts with sanguineous discharge noted that in 19 duct papillomata were found. Carcinoma was the disease in 21, and chronic cystic mastitis was present in 13. He concluded that when the discharge is bloody there is a 40 per cent incidence of cancer.

Variation in the character of the discharge is due to the causative lesion and its location and the presence or absence of infection, necrosis, stasis, and extent of the disease. In Copeland's series[3] of 67 patients (27 of which were bloody) he found that two-thirds were due to cancer.

Donnelly[4] in his study of 219 patients with nipple discharge attempted to correlate the type of discharge with the organic underlying disease. His study clearly indicated that no one type of discharge is specific for any one lesion. But in his group with sanguineous discharge 53 per cent had malignant lesions.

In the analysis of his 97 cases Fitts[5] found that, regardless of type of discharge, 25 per cent were due to carcinoma. His study also pointed out that a solitary papilloma is rare (5 per cent); the majority are multiple. This is an important fact when considering therapy. He found also that nonsanguineous discharge does not rule out the possibility of malignancy.

Hollenberg[14] showed in his study of 44 cases of sanguineous discharge that the presence of a mass did not always impute carcinoma but its absence excluded it.

Lewison[8] found that 19.3 per cent of his 114 patients with discharge had carcinoma. He warned that "discharge betrays an early and unsuspected ductal or ductal-acinar disease."

McLaughlin[10] found that 26 per cent of his series had carcinoma and, if the patient had passed her fifth decade and had a mass, this figure rose to 72.7 per cent.

The incidence of carcinoma in patients with bloody discharge has been reported by Judd[15] to be about 57 per cent and by Gray[16] to be 50 per cent. One certainly may conclude that, whereas nipple discharge indicates disease, it is imprudent to associate any 1 type of nipple discharge with a single etiologic agent. Of all types of discharge carcinoma is present in 20 to 25 per cent of the cases, and, if a mass is present or the discharge bloody, this percentage increases remarkably.

Physiologic and Pathologic Considerations

A correct clinical interpretation of nipple discharge is dependent upon one's knowledge of the nature of the underlying lesion producing it. Cyclic changes that normally occur within the breast can be correlated with the degree of estrogen-progesterone activity. Mammary gland proliferation and branching of the ducts with little or no development of the alveolar system is known to be the result of estrogenic or ovarian follicular hormone stimulation. Progesterone in combination with estrogens, but not alone, induces extensive development of the breast to the compound acinar or alveolar stage. Whether these changes are due solely to ovarian activity alone is still speculative. There is every reason to believe that variation in physiologic response may in part be due to cyclic changes.

Since the breast is not a static organ it undergoes constant physiologic changes as the result of ovarian activity. These changes are manifested by a periodic cycle of hyperplasia and involution within the breast. In the premenstrual cycle the epithelial cells of the ducts become larger and branch out into the periductal tissue. Associated with this expansion there is a retention of water in the periductal tissue producing a myxomatous appearance. Lymphocytes appear in the periductal tissue. The breast being an apocrine gland, the epithelium develops vacuoles in the cytoplasm and albuminous secretion appears in the ducts. If pregnancy does not occur, involution takes place and products of secretion, namely, desquamated epithelium, cellular débris and protein precipitates, are shed into the ductal system. Normally these products undergo autolysis or are engulfed by the phagocytes. A disturbance of the above cycle, usually a result of relative ovarian hormonal imbalance, may produce excessive hyperplasia or delayed involution (as in chronic cystic mastitis).

An eroded vessel wall bleeds, whether it be at the tip of a benign papilloma or adjacent to or within a carcinoma. If the bleeding lesion is situated near the orifice of the duct the escaping fluid is frankly hemorrhagic. If it is deep in the matrix the fluid assumes a serosanguineous or brownish color due to degeneration of retained blood and its admixture with other secretions from the duct. It may also be altered by infection or necrosis.

A proper understanding of the intraductal papilloma more than any other lesion enables one better to understand nipple discharge.[17] It is a lesion which creates the greatest problem as to proper diagnosis and treatment. The papilloma histologically is a complex papillary mass projecting into the lumen of a duct. The papillary mass is made up of branching stromal bands and is usually attached to the wall of the duct at one point. These stromal bands are coated over with epithelium similar to that of the wall of the duct. Since the stroma is vascular, oozing may occur from its surface producing the blood-stained discharge. It is important to recognize that the papilloma histologically may vary from mere heaping up of epithelium to a complex papillary pattern producing a mass 1 cm. or more in diameter. Early, it is too small to be palpated or visualized, but it is capable of producing nipple discharge. The patient with nipple bleeding without a palpable mass usually has this type. There may be transitions from 1 type to another, and several of the types can be found within 1 breast. This transition helps to explain the pathogenesis of lesions which produce nipple discharge and in turn fits in with the chronologic relationship which the common lesions producing discharge show.

Multiplicity of intraductal papillomas is frequent. The exact frequency cannot be known because that would require complete sectioning of the breast. In the series of Donnelly[4] 4 patients treated by local excision of a papilloma, which histologically showed evidence of hyperplasia, suffered recurrences. Also, 2 patients with chronic cystic mastitis with hyperplasia treated by local excision had recurrence. In each, the recurrence was a malignant change. It would seem that papillomata of the breast may form part of a process in which carcinoma may develop. Fitts[18] also found that solitary papillomata were rare. He found that in one-half of his cases intraductal papillomata were almost microscopic.

Duct ectasia as a cause of discharge occurs when the lumina of several subareolar ducts measure more than 3 mm. in diameter.[19] Microscopically, thickening and sclerosis of the walls with atrophy of the epithelium lining the duct wall are found.

Wellings[20] pointed out that sclerosing adenosis is not "precancerous." It is a mammary dysplasia possessing a number of the superficial histologic resemblances to infiltrating duct carcinoma. His differentiation was achieved by usage of the electron microscope. In sclerosing adenosis the acinar structures possess central lumina containing amorphous granular débris. Microvulvi are frequent at the luminal-cell surfaces, and each acinus is enclosed by an intact basement membrane. Differentiation of cell surfaces, such as desmosomes, terminal bars, and interdigitations of the membranes of adjacent cells is found. Dense bodies in the cytoplasm of the epithelial cells are found. The surfaces of the cancer cells showed relatively fewer terminal bars, desmosomes and interdigitations of adjacent cell membranes. Basement membranes were incomplete. Mitochondria tended to be small and ovoid with few cristae. Ergastoplasm was absent. Finely fibrillar material was frequently present in abundance in the cytoplasm of the carcinoma cells.

In carcinoma of the breast, nipple discharge results from the invasion of the ductal system by the neoplasm. The character of the discharge is influenced by the presence of infection, necrosis and stagnation. The types of carcinoma found in any series of cancers producing nipple discharge are listed by Treves[13] as infiltrating carcinoma, papillary carcinoma, comedocarcinoma, Paget's disease, and lobular carcinoma in situ.

Clinical Types

The types of nipple discharge fall into 2 main groups, namely, that in which the character of the discharge is determined by an apocrine-like exfoliation and stagnation within the ductal system and that in which hyperplastic or neoplastic changes in the ductal system influence the character of the discharge.

The spectrum of secretion from the nipple can be any color or description. Separate ducts within the same nipple and at the very same time may secrete diverse types of discharge. Spontaneous discharge may be described as milky, grumous, purulent, watery, serous, bloody, or serosanguineous. Milky discharge has the color and consistency of milk. It may be observed in patients with galactorrhea, a relatively uncommon condition which produces a spontaneous milky discharge for 1 or more years after lactation. It is usually bilateral and not associated with any demonstrable abnormality of the breast. The exact nature of the physiologic disturbance producing galactorrhea is not fully understood.

A grumous discharge is produced by mammary duct ectasia or dilated ducts beneath the nipple. It is a thick discharge of varying color. It is always sticky and thick and microscopically shows only amorphous material and desquamated epithelium. Bloodgood[19] in 1923 referred to this condition as "the varicocele tumor of the breast." Cystic dilatation is observable in the terminal ducts, and these tortuous dilated channels produce the palpatory impression of a sack of worms around the nipple. Ectasia is not a rare condition, Frantz[21] having demonstrated it in 25 per cent of an autopsy series of supposedly normal breasts. In only a small percentage of the patients, however, does mammary duct ectasia go on to produce a discharge. These patients, nearly all of whom are at or past the menopause and who usually have borne children, complain only of a thick grumous discharge. Palpation reveals the characteristic wormlike feeling under the areola. Although as a rule the discharge is the earliest symptom, redness, pain, itching and swelling in the region of the nipple are also early symptoms. When the disease has progressed to the stage at which inflammatory changes and consequent fibrosis have produced a tumorlike mass, it may mimic carcinoma. There will be a relatively fixed, firm, irregular mass beneath or near the areola. The nipple may be retracted and the skin dimpled, and the discharge may have become purulent, serous or bloody. This end-stage of the disease in cases of mammary duct ectasia has been called "plasma cell mastitis" by Adair.[1]

Purulent discharge may occur in association with acute puerperal mastitis and chronic lactation mastitis. Acute puerperal mastitis occurs within just a few weeks after delivery. In cases of chronic lactation mastitis there is usually a history of an abscess or inflamed breast during nursing. An area of persistent induration and thick discharge, microscopically pus, is found.

Watery discharge without color is rare. It is highly suggestive of malignancy. Serous or serosangineous discharge is the more common type. A serous discharge is thin, translucent and slightly yellowish. It dries as a yellow stain upon the patient's bra or gown. In serosanguineous and sangineous discharges blood is macroscopically present in varying amounts.

Copeland[3] described the clinical findings when discharge is present with carcinoma and benign lesions. In 25 cases of carcinoma pain was present in 8. Discharge was the first symptom in 5. The interval before a mass was discovered varied from 3 weeks to 7 years. A mass appeared first in 9 cases, preceding the discharge by 2 months to 15 years. In 5 the mass and discharge were concomitant. In 3 the discharge was the sole symptom.

In 42 patients with benign lesions with discharge Copeland found the discharge bilateral in 12, the ages of whom varied from 23 to 73 years. A mass appeared first in 3 cases before discharge. Discharge appeared first in 7 cases. In 2 cases mass and discharge appeared concomitantly.

Today it is conceded that one may have spontaneous nipple discharge due to carcinoma without a palpable tumor. Fitts[18] describes 4, Kilgore[22] 4, and Haagensen[6] 3. One should not demand a mass before biopsy. McLaughlin[10] found 3 cases of carcinoma without mass by biopsy.

As regards age, Fitts[18] found the average age of patients with carcinoma with discharge to be 54. The average age of those with benign tumor with discharge was 42. McLaughlin[10] found the average age of the carcinoma group to be 57.

Diagnosis

The puerperal mammary secretion of normal lactation is physiologic and should not be suspect. Nonspontaneous discharge that has to be elicited is harmless and has no pathologic significance. There is no need therefore for the examining physician to try to express material from the nipple. In many women at or near the menopause, and in women recently castrated, firm squeezing of the subareolar area and nipple will result in the expression of a drop or 2 of cloudy, milky or thick-greyish secretion. These patients should be reassured and told that this is normal and does not indicate any pathologic condition. Erosion of the nipple in cases of Paget's disease with consequent oozing of serum does not indicate a true nipple discharge. A mammary duct fistula secondary to recurrent infections of the breast as described by Patey[23] is another type of false discharge, since the orifice of the fistula is usually located at the areolar margin and the discharge appears at this point and not on the surface of the nipple.

It is well to consider here the advice of Riddell,[24] "It is wise to accept with humility that however experienced we are we cannot differentiate with certainty on clinical grounds alone between a nonmalignant and an early malignant lesion."

Since there are 15 to 20 orifices of the lactiferous tubules in the nipple one should apply firm pressure over the various segments of the breast until the source quadrant yields secretion. This secretion may be stained with Wright's stain.

In stagnation types of discharge, microscopically desquamated degenerated epithelial cells, colostrum cells, lymphocytes, mucus and protein precipitates are seen. In the hyperplastic type of discharge, erythrocytes, desquamated epithelium, tumor cells, lymphocytes, and protein precipitates are seen. Occasionally a grumous discharge may grossly appear sanguineous but under the microscope shows no erythrocytes but rather the presence of amorphous material and desquamated epithelium. In chronic lactation mastitis the discharge will be found to be pus. In cases in which macroscopic examination is negative for blood, a stain is exceedingly valuable. Donnelly[4] has stated that microscopic blood can be found in 50 per cent of the cases of discharge due to carcinoma.

After determining the nature of the secretion microscopically cytologic examinations should be made. The value of the cytologic study depends upon the training and experience of the examiner. Both Papanicolaou and Saphir[25] have been enthusiastic about this procedure. Haagensen,[6] Hollenberg,[14] and Jackson[26] use this method of diagnosis but call attention to the possibility of false positives. Copeland[3] and Donnelly[4] disapprove of this procedure. One cannot, however, but be impressed with the cases of Kline[27] and Romberg[28] who utilized this method. Kline found negative smears in a bloody discharge during gestation. Time proved this to be right. In Romberg's case study of clear nipple secretion revealed cancer cells. Surgical exploration revealed carcinoma in situ.

Transillumination of the breast has been mentioned in all reports. Apparently it has lacked real value. Hollenberg,[14] Campbell,[2] and Donnelly[4] urged that it be abandoned. It is an ancient, inexact procedure which has long since been replaced by newer and sounder methods of diagnosis.

Hayashi[29] advocates the use of the ultrasonic method of diagnosis of tumors of the breast. This is based on abnormal echoes of pulsed ultrasonic wave of 1 to 10 megacycles caused by the abnormal acoustics of tumor tissue. This work has been inconclusive and probably shall remain a research tool without much widespread clinical value.

The value of various X-ray procedures in this problem has been increasing, again depending on the training and enthusiasm of the person performing the test. Injections of radiopaque materials intraductally have been virtually abandoned recently because of the high incidence of chemical mastitis resulting therefrom. Mammograms have been performed for 50 years, but only recently has this procedure been fully appreciated and employed by such authors as Gershon-Cohen.[30] Gross tumors are easily detected by this method, and in rare instances carcinoma in situ has been detected by it. This shall gain further acceptance and shall become a very valuable diagnostic tool.

Aspiration biopsy becomes less popular among authors. However, Berg[31] in a study of 1,412 patients so treated found no reason to consider the procedure detrimental to the patient when he analyzed the "late-look" statistics of these cases.

Biopsy remains the procedure of choice, and all authors place it first among the aids to diagnosis. After localizing the source quadrant by firm pressure a biopsy is performed there.

Treatment

A review of the surgical literature reveals a disconcerting lack of uniformity in the treatment of patients with nipple discharge. Although this subject has prompted a free and diverse discussion in contemporary as well as the time-honored annals of medical literature therapy remains the problem of each surgeon. It is unfortunate but true that observational pathology has been unable to pigeonhole all breast diseases into error-tight compartments of benign and malignant disease. But the treatment of the patient who has nipple discharge must be directed toward the underlying disease.

Hormonal therapies for the patient with galactorrhea have been tried in vain. Its therapy requires only simple hygiene to prevent periductal mastitis. The patient needs reassurance that the condition is not surgical and that it bears no relationship to cancer. It may occasionally persist longer than a few years.

In the early stages of ductal ectasia producing grumous discharge, conservative therapy with local hygiene directed to the nipples is reasonably satisfactory. In 32 of 72 cases reported by Geschickter[32] the patients ultimately recovered without operation.

The purulent discharge occurring in acute and chronic mastitis is treated best by antibiotics and incisional drainage when necessary.

Whenever sanguineous, serosanguineous or watery discharge are associated with a mass the therapeutic program is clear. When no mass is present, the plan is less clear. Hinchey[9] believed that the entire breast should be removed in cases of nipple bleeding even when no localized focus was clearly demonstrable. He believed that the bleeding breast without tumor must be suspected of harboring not only a papilloma or precancerous epithelial type of hyperplasia but even an impalpable carcinoma. Gray[16] and Estes[17] agreed inasmuch as they considered even the smallest papilloma as a grade I carcinoma. Likewise, because papillomata are often multiple and will become malignant, they believed amputation to be necessary. In this dilemma Fitts[18] believed that one must carefully weigh the psychic effects of amputation for papillomata against the probability of repeated surgery and the risk of possible carcinoma in the future.

Whenever biopsy reveals a benign tumor, either segmental resection or simple mastectomy is advised. With a malignant tumor radical mastectomy and radiation are advised. There is complete agreement among the authors on this matter.

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Venereal Disease in the Nation's Capital

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International Scene

REPRESENTATIVES from 30 countries attending The World Forum on Syphilis in Washington during 1962 found that "syphilis has been increasing around the world in threatening proportions."[1] The findings of a 10-year study by the World Health Organization also attest to this fact. Seventy-six out of 105 reporting nations showed an increase in the incidence of syphilis during the decade 1950–1960.[2] The World Health Organization's Chief Medical Officer for Venereal Disease and Treponematoses, Dr. Thorstein Guthe, stated, "There can be little doubt that the marked sharp decline of venereal syphilis after the post-war peak in 1949–51 came to a halt in the years 1954–57, to be followed by a sustained rising incidence trend in all regions of the world."[3]

The World Health Organization has further found *Neisseria gonorrhoeae* to be developing resistance to antibiotics and that more and more treatment failures are occurring even with much larger dosages than were used 10 years ago.

The rising incidence of venereal diseases among teenage groups has also been found internationally. For example, in Czechoslovakia, the 15- to 19-year age group accounted for one-third of the new cases of syphilis during the decade 1950–60. Concern about the rise in venereal disease among teenagers is expressed by health authorities of Great Britain, India, Italy and Scandinavia. Denmark doubled its incidence rate in 1960, and more than half the cases occurring originated abroad.[4]

It seems clear from these statements and facts that the rising venereal disease curve is an international phenomenon and not one restricted to this country.

National Scene

Turning, however, to the trends in the United States, Dr. Arthur C. Curtis, Chairman of the Department of Dermatology of the Medical Center of the University of Michigan, stated, "There can no longer be any question that infectious syphilis is now the largest and most serious communicable disease problem in the United States."[5]

The findings of a national survey of 3,000 private practitioners during 1962 gave a conservative estimate of between 80,000 and 100,000 cases of infectious syphilis in the Nation. In 1947 more than 100,000 cases of venereal syphilis were brought to treatment in the United States. By 1955 the disease had declined to one-seventeenth of its 1947 level, and by 1957 the number of reported cases dropped to 6,200.[6]

Beginning, however, in 1959 there was a sharp rise in cases reported so that by 1962 approximately 124,000 cases of syphilis were reported in the United States, of which more than 21,000 were in the infectious stage.[7]

Concurrently, during the period 1955–60 Federal funds for venereal disease control dropped from 11 cents per capita to 3 cents.

In fiscal 1962 reported cases of infectious syphilis were 7 per cent above 1961. Available statistics clearly indicate a continuing rise in primary and secondary syphilis with a decline in late syphilis. The seriousness of the fact that infectious syphilis continues to rise is obvious.

While the more than 260,000 cases of gonorrhea reported in 1962 constituted a small decline from the cases reported in the preceding year, this should not be taken to reflect an actual decrease in the incidence of this disease. It might well reflect inadequate reporting, a deëmphasis of gonorrhea control activity by health departments, or both of these factors.

In the United States there has been a marked increase of new syphilis in persons under the age of 20, particularly since 1956, and the increasing incidence of the disease has not been confined to any race, sex, socioeconomic group, or geographic area.

Among the reasons cited for the national resurgence of venereal disease are included public complacency, increased promiscuity, blind confidence in penicillin as a "one-shot" cure, and population mobility.[8] It should also be noted that among the 7,000 medical students who were graduated from medical schools last year, relatively few had more than 2 hours of syphilology during their entire 4 years, and fewer still ever saw a clinical case of infectious syphilis. Diagnosis has become more difficult because of the widespread use of antibiotics, and there also seems to be considerable evidence of a growing resistance to penicillin treatment.[9]

Although venereal disease was once intimately related to social and economic status, it has been stated that today "those in the upper middle class and even in the upper class contract this disease as often as those in the lower class." Urban centers appear to be focal points for infection.[10]

In 1962 the 10 largest cities in the United States reported half of the total number of cases of syphilis reported in the country.

More cases of infectious venereal disease occur at age 18 among females than at any other age. Teenage venereal disease appears to be closely associated with sexual promiscuity, illegitimacy, and juvenile delinquency; stated in another way, more than 50 per cent of all reported infectious venereal diseases in the United States now occurs among young adults under 25 years of age.

An increasingly serious aspect of the venereal disease control problem is that of the syphilitic homosexual. Before World War II little attention was given to this group. Today, surveys in major population centers show that homosexual contacts account for nearly 1 out of 7 new cases of infectious syphilis.[3] It is believed by many that this is a conservative estimate.

In New Orleans 70 per cent homosexuals among newly reported cases of syphilis was the figure quoted by Dr. Frank Gamillia, the City's Venereal Disease Control Officer.

It must be pointed out that responsibility for diagnosis and treatment of venereal disease has shifted. In the era of arsenotherapy most patients were treated in public clinics, primarily because of inconvenience for both doctor and patient in the private setting and also because the prolonged treatment was burdensome financially so that it was often not completed when undertaken privately. With the advent of penicillin, however, bringing ease of administration and lower cost, treatment of venereal disease has shifted to the private physician's office so that it is currently estimated that more than three-fourths of all cases of syphilis and gonorrhea occurring in this country are being treated by private practitioners in their own offices.[5]

In an editorial (March 30, 1963) in *The Journal of the American Medical Association* it was stated, "The only difference is that now the private practitioner of medicine cannot escape his major role in the control of syphilis." The question of reporting by physicians of cases of venereal disease has come under scrutiny with the results indicating that little more than 10 per cent of infectious syphilis and gonorrhea are currently being reported. Closely related to this question is that of reporting all reactive serologic tests for syphilis to health authorities. Complete laboratory reporting, both public and private, could well open the door to venereal disease control through epidemiologic follow-up.

In Los Angeles, during the year 1962, physician reporting of syphilis rose approximately 30 per cent over the previous year, following passage of a regulation requiring private laboratories to report all positive serology specimens.

The public interest and concern now being engendered on the national scene are noteworthy. Very considerable interest in the venereal disease problem appears to have developed. Newspapers and magazines abound in feature articles and special news stories, and they include even popular magazines; radio and television have featured special programs over major networks. Citizens' groups have held discussions of the problem and have developed plans for action. In this connection the results of a sociologic study carried out in 1961 of 600 teeenage patients and suspects admitted to venereal disease clinics in New York City is worthy of note. Among the group studied only 10 per cent were satisfactorily informed regarding venereal diseases. Almost two-thirds of the group obtained sex and venereal disease information from "back fence" routes. The relatively small number of teenagers whose information had been provided by a responsible adult appeared to have been much less promiscuous and to have had fewer socially deviant behavior problems. Teenagers of greatest promiscuity were those whose parents had put few restrictions on their social activity.

It should be further noted that a significant proportion of teenagers with venereal disease had satisfactory living arrangements, long residence in one location, parental supervision, religious affiliations, and family stability.[11] There is serious reason to question the popular assumption that venereal diseases occur largely and almost entirely along with other social problems such as alcoholism, narcotic addiction, juvenile delinquency, adult crime, school dropouts, and marital failures.

Certainly it would appear that the changing characteristics of this problem, new techniques developed to control it, and the challenging of traditional social views concerning the problem all require a sharp modification of the attack upon venereal diseases. The problem and program existing within the District of Columbia must be reviewed within these concepts.

The Problem in the District of Columbia

The venereal diseases represent as serious a public health problem in the Nation's Capital as they do in the Nation as a whole and in many other parts of the world.

In fiscal 1962 Washington ranked fourth highest among United States cities of 200,000 or more in its rate of primary and secondary syphilis. In fact, the rate in the District of Columbia, 94.7 cases per 100,000 population, is almost 4 times the national average in cities of 200,000 or greater.[12] Morbidity data for gonorrhea in 1962 revealed the District of Columbia rate to be many times greater than that of any other city of 200,000 or over. The rate in the District during that year was 1,114.6 per 100,000 population.

The critical nature of the problem is clearly revealed by the increase in new infectious cases. From a low of 36 cases of primary and secondary syphilis in fiscal 1956 there has been a steady increase in the number of cases reported in the District. Beginning with fiscal 1960 there has been a dramatic rise in reported cases, from 472 cases in that year to 702 in 1962. Furthermore, there is strong evidence that there are many more cases of venereal disease treated by hospitals and private physicians but not reported, in addition to an unknown reservoir of undetected cases.[13]

From a study carried out during 1962 it was concluded that approximately 15 per cent of all primary and secondary syphilis cases diagnosed by physicians were reported. As is true of the Nation as a whole, there is a downward trend in the number of latent cases reported.[14]

Beginning in 1960 there was a decline in the number of cases of gonorrhea reported. However, in view of the fact that the Department of Public Health has concentrated in recent years on locating contacts of infectious syphilis, the decline in the number of gonorrhea cases reported may well be partially due to this shift in program emphasis rather than a reflection of lesser incidence.[15]

In 1962 the rate of primary and secondary syphilis in the District of Columbia for nonwhites was approximately 9 times the rate reported for whites. However, it may well be that a larger proportion of white syphilitic patients are treated by private physicians and not reported so that this disparity may not be as great as it appears. Furthermore, a comparison of rates over the past decade shows that both white and nonwhite rates have increased approximately 7-fold. In addition, in the case of gonorrhea the rate of new cases occurring among whites as compared to the rate 10 years ago has shown an increase, whereas the rate among nonwhites has decreased during the same period of time.[16]

When one reviews the distribution of reported venereal disease cases, it is clear that the largest number of infectious venereal disease cases are now occurring in the age group 20–24. Cases reported at ages 14 and 15 predominate among females. At age 16 they are fairly equally distributed between the 2 sexes, while above that age the number of cases is greater among males.[17]

In the District of Columbia the problem of homosexuals is intimately related to the venereal disease problem. Furthermore, it is clear that venereal disease is recognized as a serious problem by the homosexual community itself. A study carried out during 1963 of males with primary and secondary syphilis interviewed by the staff of the Health Department showed that 40 per cent named 1 or more male sex partners. This then precisely outlines the nature of the problem. Evidence abounds that the community itself is aware of the problem and anxious that steps be taken to reduce its tragic consequences. An editorial, "Enemy from Within,"[18] appearing in *The Washington Post*, Sunday, April 7, 1963, reflected a "grave concern" over the menace of venereal disease. Each of the Washington newspapers has reported the problem as newsworthy. Requests for talks and informational materials on this subject well outnumbered those on any other subject. A bulging file contains copies of several reports to Congressional committees in response to specific inquiries for data on the problem and the program of the Department of Public Health. In reviewing the Department's request for appropriations for fiscal 1963 the House Appropriations Subcommittee suggested that the sum requested was inadequate for an all-out effort to control infectious syphilis, "the most dangerous of all venereal diseases."[19]

Turning now to the program currently being carried out by the Department of Public Health in an effort to control this increasingly important disease entity, its activities can be divided into case-finding, diagnosis and treatment, and education.

Case-finding

The first objective of a venereal disease control program is to find and treat all persons with infectious venereal disease in order to prevent the spread of the disease to others and to stop the progress of the disease in the infected person. Accordingly, it is essential that every single contact of an infectious venereal disease case be located, examined, and given proper treatment. To accomplish this goal private physicians, health officials, and exposed persons must work coöperatively.

In the District of Columbia Department of Public Health a staff of venereal disease investigators (epidemiologists) interview patients for contacts and trace these contacts in order to give them the opportunity for diagnosis and treatment. This service is provided for all Health Department clinic patients and to any private physician or hospital clinic. The venereal disease investigator requires special training in interviewing and investigating techniques. He must be able to insure confidentiality of information and must be effective in persuading individuals who are suspects to come in for examination and treatment. He must be able to handle skillfully a great variety of health and social problems relating to sex and venereal disease. Currently, these venereal disease investigators operate out of the Northwest Central Health Clinic.

One achievement of these epidemiologists in 1962 was an increase in physicians' case-reporting, undoubtedly due primarily to the success of these epidemiologists in contacting private physicians. In fiscal 1962 these epidemiologists made more than 10,000 investigations of contacts and suspects, and almost 90 per cent of these patients were actually examined. Also in 1962 they interviewed 95 per cent of all patients reported by private physicians who had primary and secondary syphilis. In these private cases an average of 3 contacts was obtained for each patient interviewed, while for those patients seen in Health Department clinics approximately 4 contacts were found for each case interviewed. No private patients with gonorrhea are presently being interviewed by these epidemiologists and less than two-thirds of the gonorrhea cases seen in Health Department clinics are so interviewed. This has reflected a decision of the Department to concentrate its efforts on syphilis; it does not indicate that there is no need for a contact investigation of these gonorrhea cases. During the first 9 months of fiscal 1963, 1,100 of the 2,000 private physicians in actual practice in the District of Columbia were visited by Health Department venereal disease investigators. These calls were made to alert the physicians to the venereal disease diagnostic and and epidemiologic services; at these visits the reporting of venereal disease is encouraged and diagnostic and treatment information made available. The physicians are advised that, as a part of the Health Department's services, personnel trained in dark-field microscopy are available to assist the private physicians upon request.

As part of the Department's venereal disease control program, persons at the Jail and the Women's Bureau are screened for syphilis. At the Jail inmate technicians are used and paid on the basis of 7 cartons of cigarettes a week. Approximately 16,000 blood specimens are taken each year, and close to 40 new cases of primary and secondary syphilis are identified. As of August 1963 every child admitted to the Receiving Home is given a blood test for syphilis. All inpatients at D. C. General Hospital routinely receive blood tests for syphilis. Although a considerable number of outpatients are also given this routine test, at present this procedure has not been extended to all outpatient visits. Serology tests are carried out at the time of admission of patients to prenatal clinics. Furthermore, it is required that hospitals must make a test for syphilis at the time of delivery if such test has not already been performed.

A regulation was recently enacted requiring that laboratories and blood banks report positive serology results to the Department of Public Health. The Health Department's venereal disease investigators have visited the 35 laboratories in the District in an endeavor to facilitate this reporting system.

During the past few months members of the laboratory staff of the Department of Public Health have initiated a new test for syphilis, the fluorescent treponemal antibody test (F.T.A.). This is a very useful test in that it rules out the so-called "biologic false positives" as does the *Treponema pallidum* immobilization test (T.P.I.); moreover, it is more practical and less expensive than the T.P.I. test. The fluorescent treponemal antibody test is being used in the identification of gonorrhea. The Department's laboratory is also evaluating the new Rapid Plasma Reagin test.

Diagnosis and Treatment

Diagnosis and treatment of venereal diseases are carried out by the Department of Public Health at 3 clinic locations: Northwest Central Health Clinic, Southwest Health Center, and D. C. General Hospital. Furthermore, in addition to the important role played by private physicians, the following hospitals also have outpatient clinics regularly scheduled for the diagnosis and treatment of venereal diseases—Freedmen's, Georgetown, George Washington, Hadley Memorial, Providence, and the Washington Hospital Center.

A study carried out in 1962 showed that more than 50 per cent of physicians in general practice currently treat venereal diseases. At the Northwest Central Health Center the venereal disease clinic is a full-time operation, 5 days a week. This is also true at D. C. General Hospital, while at the Southwest Health Center clinics are held each week-day morning. For a 10-day study period in May 1963 more than 900 patients were seen in these clinics.

At each clinic patients have their history taken and receive a physical examination with laboratory tests and appropriate treatment, usually involving the administration of penicillin. Some patient education is also given at the clinic centers.

Because of the special problems of the homosexual patient consideration is being given to the establishment of separate clinic services for such patients. Experience in at least 1 other city in the United States has demonstrated the effectiveness of such a clinic.

Education

Education in the field of venereal disease can logically be divided into 4 sections: (a) patient education, (b) education of professional personnel involved in the control program, (c) education in the public school system, and (d) education of the public.

(a) Patient education has to be considered along with case-finding, diagnosis, and treatment. The patient, whether he be in a private physician's office, a hospital clinic, or a health department facility, needs to understand the nature of the disease and need for follow-up. He further needs to understand how he contracted the disease and how he can transmit it. Physicians, public health nurses, and epidemiologists must reinforce each other, and the setting must be objective, supportive, and free of prejudice.

(b) It is clear that if physicians and other professional personnel are to play a key role in the venereal disease control program they must have intimate knowledge of the current status of venereal disease, the newer laboratory techniques involved in diagnosis, and the latest recommended methods of treatment. One of the responsibilities of the Health Department venereal disease investigators is to help furnish this kind of information.

(c) A venereal disease education program is carried out in the schools of the District of Columbia. The program dates back to 1956, and a pilot project was established during the 1958–59 school year. In the 1961–62 school year all schools entered into the program. Instruction in venereal disease is included for grades 8, 10, and 12.[20]

(d) In the area of public education the staff of the Department of Public Health has given many talks and has participated in a very considerable number of community conferences. The record of activity in the community in support of the venereal disease control program is impressive. The Social Hygiene Society of the District of Columbia, the major voluntary health agency involved with the venereal disease problem, has been very actively engaged in promoting community education activities and supporting venereal disease control.

Summary

An attempt has been made in this paper to define the problem of venereal disease as it exists in the District of Columbia and how this problem is related to the larger problem in the Nation and in the world.

An attempt has been made to discuss the programs currently being carried on in the District of Columbia in an attempt to control this disease. No attempt has been made to discuss deficiencies in the existing program and the changes being contemplated during the next few months or years.

Acknowledgment: Credit must be given to Mrs. Dorothy J. Youtz, Program Planner, District of Columbia Department of Public Health, since much of the material for this paper was derived from her excellent evaluation of the District's venereal disease control program.

(Continued on page 198)

Proprietary Drug Abuse

Report of a Probable Case of Burnett's Syndrome due to Excessive Ingestion of an Over-the-counter Remedy, Tums

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ALL DRUGS have potential ill-effects, depending on the individual patient's susceptibility or abuse. Even those drugs which can be obtained without a prescription, often on the recommendation of a pharmacist or because of television commercials, and which are supposedly harmless, can be dangerous, not only because of individual susceptibility or excessive usage but, even more important, because their use may delay the making of the diagnosis of a serious disease. Unless the physician carefully questions his patient as to whether he has been using any drugs or whether he knows he is sensitive to any drugs, the patient may not consider it important to proffer this information. These data should be conspicuously set forth in the patient's record and underlined with a red pencil. Numerous incidents of serious ill-effects could be cited.[1, 2] The following case report is an example of what can happen with prolonged usage of a commonly used proprietary preparation, Tums.

Alkalosis, as a syndrome complicating the therapy of peptic ulcer, has been known for 40 years.[3] Contributing factors to this syndrome have been recognized as not only excessive alkali ingestion but also renal impairment and vomiting, which causes an excessive loss of gastric contents with resultant decreased serum chloride and increase in the serum bicarbonate content.

Burnett et al[4] in 1949 described a syndrome in patients with peptic ulcer who had taken large amounts of milk and soluble alkali for variable periods and developed azotemia, renal insufficiency, mild alkalosis, and metastatic calcinosis manifested especially by calcium deposits in the cornea. The laboratory data were chiefly remarkable in that there were hypercalcemia without hypercalciuria and normal or slightly elevated serum phosphorus and alkaline phosphatase.

While Burnett reported a slowly developing syndrome after years of antacid therapy with frequently irreversible renal insufficiency, Wenger et al[5] reported a more acutely occurring and rapidly reversible syndrome of milk and alkali ingestion.

Report of Case

A 42-year-old white man was seen because of a swollen, red, indurated left index finger associated with mild paresthesia of numbness and tingling of 2 weeks' duration. He had also noted a draining sinus tract on the inner aspect of the right foot of similar duration discharging a cheesy, whitish material. He had in addition anorexia, belching, nausea, fatigue, frontal headaches, dyspnea on exertion, moderate photophobia, arthralgia of the hips, ankles and knees, and a gradual 50-pound weight loss over the previous 6 months, partially occasioned by attempts at dieting. He had further noted nocturia 5 to 6 times a night with polyuria for 10 months and generalized pruritus of 4 months' duration.

There was a history of gout and polycythemia diagnosed at a university hospital 8 years previously, and the patient had subsequently taken Benemid® and colchicine as occasion demanded. For 4 years he had taken a proprietary remedy, Tums, for indigestion and flatulence. He had averaged 1 roll a day (15 Gm.), but in the month prior to consultation had increased his intake to 4 rolls a day, or approximately 60 Gm. a day. He had been on hydrochlorothiazide, 1 tablet a day, for hypertension of 1 year's duration. He had also taken colchicine, aspirin and Benemid as occasion demanded for joint pains due to gout.

Physical examination showed whitish deposits on the temporal and nasal aspects of both sclerae. There were diffuse expiratory wheezes throughout both lung fields. The liver was enlarged 4 cm. below the right costal margin, and the spleen was felt 4 cm. below the left costal margin. The left index finger was swollen, and there was a discharging focus on the inner plantar aspect of the right foot from which a whitish, cheesy material could be expressed. An X-ray film of the left hand revealed large amorphous calcific deposits on the palmar aspect of the soft tissue of the left index finger (figure 1) which extended from the middle portion of the distal phalanx proximally to the middle interpha-

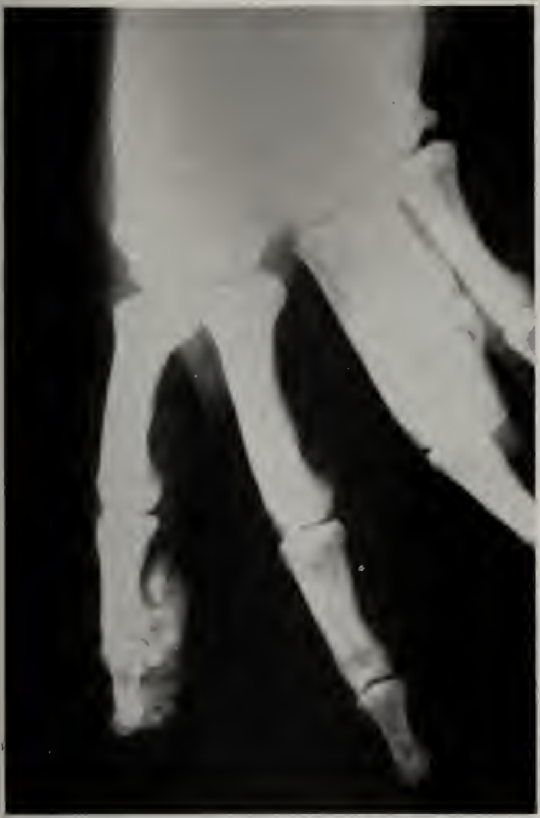

FIG. 1. Metastatic calcinosis of left index finger on admission.

langeal joint. There were also small amounts of soft tissue calcification at the proximal end of the first metacarpal joint. These findings were compatible with calcinosis interstitialis localizata. The right foot (figure 2) revealed diffuse interstitial soft tissue calcification contiguous to the draining sinus tract.

The patient was hospitalized. The hemoglobin was 9.5 Gm. with a hematocrit of 26 per cent. The white blood cells numbered 4,900 with a normal differential. A urinalysis showed a specific gravity of 1.005, a pH of 7.5, 1 plus albumin, no sugar, and 2-3 white blood cells and 1 to 2 red blood cells per high-power field. The blood urea nitrogen was 71 mg. and the uric acid 11 mg. per 100 ml., serum sodium 136 mEq./l, serum CO_2 20.7 mEq./l, serum Cl 98 mEq./l, calcium 10.3 mg., phosphorus 5.4 mg., and alkaline phosphatase 1.7 units. A 24-hour quantitative urine calcium determination 4 days after admission on a normal diet revealed urinary output of 339.2 mg./24 hrs., which is hypercalciuria. A roentgenogram of the chest and an upper gastrointestinal X-ray examination were within normal limits.

It would appear that much of the laboratory data are not compatible with Burnett's syndrome. Unfortunately, most of the blood chemical determinations were obtained 1 week after cessation of the use of Tums, and the serum calcium and CO_2 were then within normal limits. At the time of the quantitative urinary calcium determination the patient had already been on a high fluid intake after stopping alkali ingestion, and a calcium diuresis was to be expected since many of these cases are rapidly reversible once the alkali ingestion is discontinued. There was also a negative history for peptic ulcer and a normal upper GI series on this admission. The patient denied unusually excessive ingestion of milk.

On the other hand, there was an unusual history of excessive alkali intake. Tums is a very efficient alkali preparation composed of calcium carbonate, magnesium carbonate and magnesium trisilicate. There were in addition renal impairment, as evidenced by azotemia, alkalotic urine with a low, fixed specific gravity (probably contributed to by renal changes induced by gout), and a normocytic, normochromic anemia with a normocellular marrow with adequate stores of iron. The question arose as to whether metastatic calcinosis with azotemia and secondary anemia was due to excessive alkali ingestion alone.

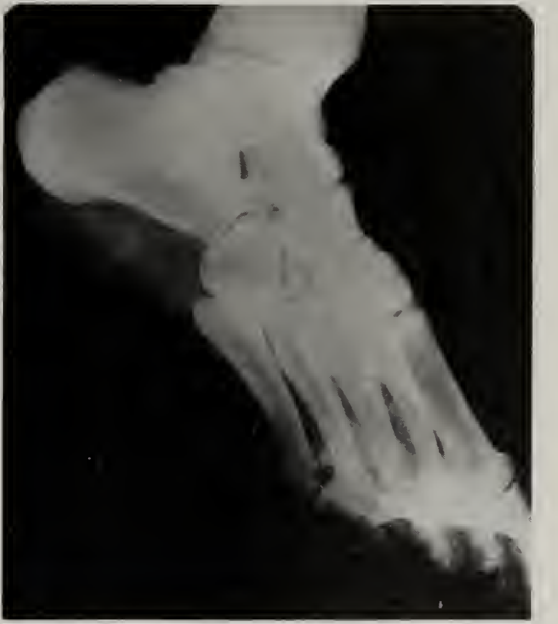

FIG. 2. Right foot, showing metastatic calcinosis on admission.

Ophthalmologic consultation indicated that the whitish deposits were, by slit lamp examination, diffuse multiple fine white calcific deposits in both the temporal and nasal area of the sclerae with final impression of limbal keratopathy with fine calcium deposits in both eyes.

Although hyperparathyroidism was not at that time ruled out by more definitive tests, because of the history of excessive alkali ingestion, after

2 units of whole blood IV was given, the patient was started on forced fluids by mouth and cessation of further alkali ingestion. On this regimen he did remarkably well with gradual but steady diminution of symptoms due to azotemia. In 1 month there was a cessation of the draining sinus of the left foot and resolution of the indurated swelling of the left index finger. In 6 weeks the elevated blood pressure, blood urea nitrogen, and depressed red blood cell count had returned to normal levels. The areas of metastatic calcinosis had shown practically complete resolution. Figures 3 and 4 show the decrease in the calcium deposits in the fingers 2 months and 15 months after the cessation of the use of Tums. The gouty arthritis has continued, controlled fairly well by Benemid and colchicine.

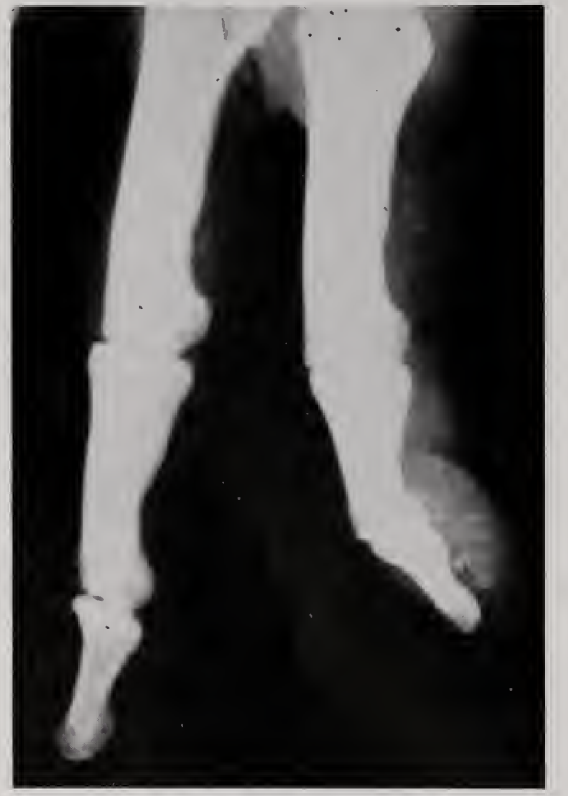

FIG. 3. Left index finger 2 months later.

This case report of Burnett's syndrome, without peptic ulcer, without excessive milk ingestion, with laboratory data done at a time when the suspected abnormalities had presumably reversed themselves due to discontinuance of alkali intake, and a high oral fluid intake associated with water diuresis, is considered worthy of report, not only to draw attention to these unusual features but also to show that excessive ingestion of alkali alone may cause the syndrome (excessive ingestion of milk alone has also been described[6, 7]). In addition, the preëxisting nephropathy due to gouty nephritis was probably contributory. Uric acid levels continue to be elevated over 10 mg. despite the administration of Benemid, which in itself is a potential renal tubular nephrotoxic agent.

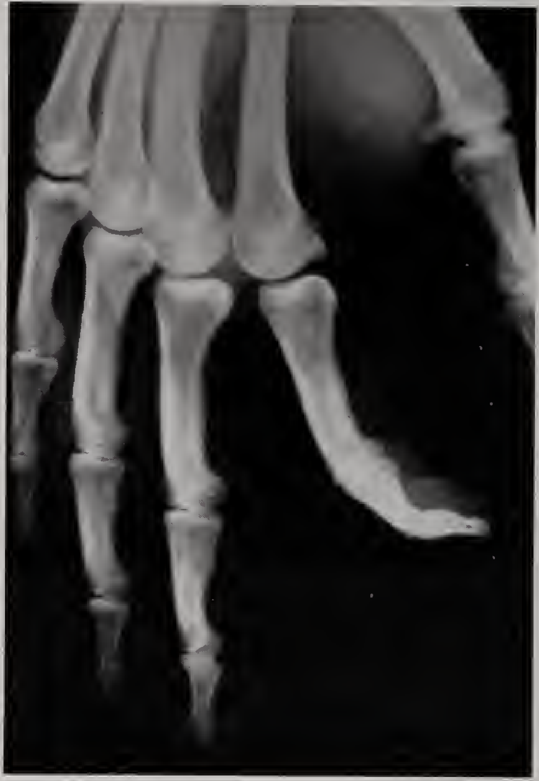

FIG. 4. Left index finger 15 months later.

The variability in laboratory findings should not militate against making the diagnosis of milk-alkali syndrome, since it has been seen in the absence of a high calcium intake,[8] hypercalcemia,[9] or alkalosis,[9, 10, 11] and in the presence of hypercalciuria, hypophosphatemia, or an elevated alkaline phosphatase.[9] When the main clinical aspects of the syndrome are present it should be strongly suspected.

Alkalosis alone has been reported to impair renal function.[12] In the peptic ulcer syndrome, with excessive vomiting, potassium depletion may have deleterious renal effects.[2] However, large doses of calcium carbonate alone in the absence of alkalosis may cause damage to renal function.[13, 14]

With the kidney subject to various toxic factors, azotemia eventually may result with subsequent hypocalciuria and resultant increase in total body calcium and eventual metastatic calcinosis.

Another interesting facet of this case report is that Tums, a very efficient alkali, is advertised to "Eat like candy." Nowhere in the labeling is there a limitation as to the quantity or duration of its use nor unusual circumstances in which its use may be contraindicated. I submit that this is quite commonly the case with many of our nonprescription drugs, and that, while the prescription drugs are perhaps being overly regulated, further thought should be given to the labeling of some of our old-time remedies of proprietary status, which in a few instances retain their favored status because of the "grandfather clause," that is, that they have been on the market as such prior to the very existence of the Food, Drug and Cosmetic Act of 1938.

It is every physician's experience that in reading of the untoward results of drug administration, he may recall cases of a similar nature either unrecognized or unreported and, in the area of proprietary drugs, perhaps not even contemplated by the unwary physician, and certainly unsuspected by the gullible public.

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Rabies—Buff

(*Continued from page 160*)

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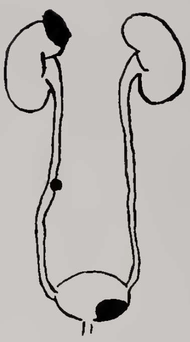
Doctor, Remember . . .

The triad of signs and symptoms for early detection of Kidney and Bladder Cancer are HEMATURIA, PALPABLE MASS and PAIN.

Hematuria occurs most commonly in adults while a palpable mass is most frequent in children.



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1. **High index of suspicion**
2. **Complete Urological Evaluation**

The Monograph, "Diagnosis of Genito-Urinary Neoplasms" has been revised.

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PRESIDENT'S PAGE

THE POLIO IMMUNIZATION PROGRAM

On Sunday, April 19, it is hoped that every person in the Washington Metropolitan Area will appear at one of the centers designated for his dose of the Oral Sabin-type Polio Vaccine. Type I will be given on this day, and subsequently Types III and II will be given in May and June, on dates to be announced. This event will culminate several weeks of intensive planning by the Medical Societies of Washington and the surrounding counties, their Health Departments, various civic leaders, service organizations, professional groups, and thousands of volunteer helpers.

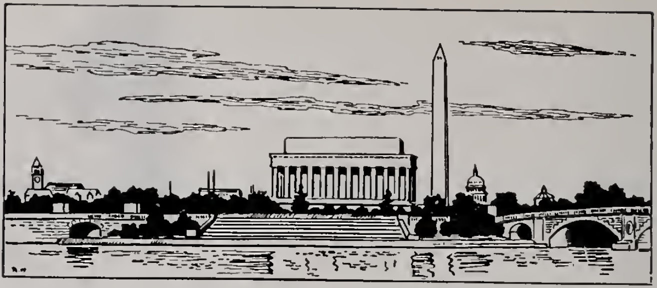
The Washington area owes a great debt of gratitude to Dr. Marvin C. Korengold and the members of his Ad Hoc Committee on Poliomyelitis Immunization who have accomplished a Herculean task in such a brief period of time. They have sacrificed countless hours in their dedication to a task suddenly thrust upon them. Dr. Murray Grant, D. C. Director of Health, and Dr. John R. Pate and Dr. Grace L. Stóne of his Department have given the wholehearted coöperation required to make the program possible.

Every physician in our community is urged to give either active or moral support to this program in order to eradicate this still deadly disease from our area. With similar programs throughout the Nation, our whole country can be made relatively free from any future danger of epidemics.

In looking through the published "History of the D. C. Medical Society" one is impressed with the tremendous role played by our Society in community health. Through its efforts the Health Department of the District of Columbia was established in 1819, the first Health Officer appointed, and a system of registration of vital statistics set up. Subsequently our Society was in the forefront in solving problems of malaria, smallpox, typhoid, tuberculosis, and other contagious diseases. It exerted leadership in the regulation of slaughter houses, water purification and eradication of wells within the city limits, dairy inspections, and many other projects.

The present campaign represents the continuing vital interest in community health matters which our members have always maintained. Much of our work goes on in complete anonymity, without reward or recognition as far as the community is aware. All of this is in the true traditions of our profession, of which we can be justly proud.

Edward W. Ricklas



EDITORIALS

The Physician and Cancer Control

April is Cancer Control Month—a time when the American Cancer Society places renewed emphasis on the control of this disease.

This year when the nearly 12,000 volunteer crusaders in the District of Columbia call on their neighbors on behalf of the Cancer Society they will carry with them a leaflet entitled "The Answers to These Questions May Help Save Your Life."

This leaflet, like all educational programs of the Society, places great emphasis on the importance of the annual health checkup and of the need to consult a physician promptly if any danger signals persist. The American Cancer Society expects to distribute more than 200,000 of these leaflets to homes and offices during the first 2 weeks of April. It is our hope that at least some of the recipients of this information will read and heed this lifesaving information.

But the key to any effective public education program must depend in large measure on the support and coöperation of the physician. No matter how often an individual may hear about early detection at one of our education programs or by reading a leaflet, and no matter how often he may be urged to have an annual health checkup the person who can best influence him in this direction is his own physician.

Further, when the patient does present himself to the physician for a health checkup or because a symptom has appeared, the action taken by the doctor himself is vital. For example, it is of little moment for a voluntary agency to urge every woman to have a "Pap smear" as a part of her regular health checkup—a procedure which authorities agree has been partly responsible for the 50 per cent drop in deaths from uterine cancer in the past 25 years—if her own physician does not use this lifesaving procedure.

In the past 2 years we have placed increasing stress on the importance of a sigmoidoscopic examination as a part of the health checkup. Many medical authorities feel that this procedure could save more lives from cancer than any step in the annual health checkup. But our efforts in this direction can be effective only if the individual physician plays his important part by including this in the examination of his patients.

During the past several weeks lung cancer and the report on "Smoking and Health" has been a major topic of concern. Any careful reading of the report will reflect that many of the studies on which it was based were carried out under the auspices of the American Cancer Society. We are proud of the courageous role the Society played in the development of this increasing concern about the health hazards of smoking. And it is satisfying to know that the American Cancer Society pioneered the work with young people in this area. Our D. C. Congress of Teens for Cancer Education here in the District of Columbia is an outstanding group of youngsters approaching this problem on a "teen-to-teen" basis.

But the fact remains that when it comes to smoking the physician's attitude is vital. He has an important responsibility, especially to encourage young people not to start, or to stop if they are already smokers.

A similar responsibility rests on the physician in relation to our Program of Service to cancer patients. The leaflet which will be distributed this month includes a summary of our services. And we constantly make every effort to alert the public to the help available. But application for many

Opinions expressed in contributions to the Editorial Section are those of the writers and do not necessarily reflect the views of the Medical Society of the District of Columbia

of our services, especially help toward payment for hospitalization and treatment, must come from the physician at an early stage and at the time diagnosis is made.

Often help needed is more emotional than financial, but certainly patients and families should be urged to call the Cancer Society where a friendly counselor can give guidance and assistance.

All of these year-round programs of the American Cancer Society would be impossible were it not for the coöperation of hundreds of physicians who give of their time and effort as volunteers, but the programs also depend upon funds.

Once each year the American Cancer Society comes to you and asks for your financial support to speed research, to save lives through education, and to serve cancer patients and their families.

When the Cancer Crusader calls on you we hope you will give generously. We hope, too, that you will continue to take advantage of the programs which your contribution helps make possible.

HAROLD W. KROGH, D.D.S.
President, District of Columbia Division, American Cancer Society

The Doctors' Symphonetta—An Appreciation

THE MEDICAL SOCIETY'S ORCHESTRA performed in honor of the Presidents of the Society, Sunday, February 2, 1964, in the auditorium of the Society. Despite little advance publicity an enthusiastic crowd was captivated by the exceptional performance of our musicians. The cocktail and refreshment hour which followed was marked by the warmth and good fellowship fitting such an occasion. It was a very enjoyable and delightful evening.

The Doctors' Symphonetta was superbly directed by Robert Gutter, who with Isadore Alpher, the concertmaster, 14 physicians and 23 members of families and ancillary groups had worked and practiced diligently for over 3 months for this concert. They are to be congratulated for the quality and audience appeal of their performance and for their enthusiasm. Exciting and interesting parts of Rameau's "Dardanus," Rossini's "Italian in Algiers," Mozart's German dances, and Williams' English folk songs were rendered in a professional manner.

The Doctors' Orchestra is not new. With the approval of the Executive Board, the Orchestra, under the direction of Isadore Alpher, gave its initial performance at the FIRST INTERSTATE SCIENTIFIC ASSEMBLY in November, 1954. A group of interested physicians met in the Medical Society's building, January 27, 1955 and appointed a Temporary Committee on Organization; Dr. Richard H. Todd, Chairman, and Drs. Alpher, Samuel Dessoff, Maurice H. Friedman, Robert H. Harmon, Isidore Lattman, Thomas M. Leonard and Mr. Theodore Wiprud composed the committee. Some of the other interested members were Drs. Adams, Cobb, Constantinople, Everett, Havell, Tenenblatt and Van Kinsbergen. Dr. Todd is a nonmusician with a dedication for cultural pursuits. The subsequent success of the Orchestra was the result of the untiring and diligent efforts of Dr. Todd, his committee, and several well known conductors. Howard Mitchell conducted an early rehearsal. Richard Wayne Dirksen was the first "permanent" conductor, followed by George Manos, and Dr. James A. Gannon, Jr., all outstanding musicians. The Orchestra performed at the Washington Cathedral, the Doctors' Office Assistants Annual Dinner, and St. Elizabeths Hospital and before the District of Columbia Dental Society, the Medico-Chirurgical Society, the Graduate Nurses' Association of the District of Columbia, the ANNUAL SCIENTIFIC ASSEMBLY of the Medical Society, the FIRST INTERSTATE SCIENTIFIC ASSEMBLY, and the Golden Anniversary Meeting of the Southern Medical Association. After this last occasion, in 1956, Mr. Paul Hume, the music critic of *The Washington Post*, wrote: "The doctors. . . displayed not only a spirited enthusiasm but a sense of real style and vigor in their work, qualities not easily achieved in such outfits." Equally flattering comments came from Mr. Jay Thorpe of *The Evening Star* concerning some of their other concerts; e.g., on October 13, 1955, he wrote: "The young orchestra is excellent in spirit and morale, and the music it made last night could be enjoyed without any concessions to the inexperience of the group."

In its formative years the Orchestra was financially aided by the Medical Society, the Dental Society, the Medico-Chirurgical Society, Prudential Building Association, Mutual of Omaha, and Peoples Drug Stores.

The Orchestra associated with and helped organize the Caduceus Choral Society for a proposed concert to present Bach's Christmas Oratorio in 1957. Unfortunately, this project was not completed. However, the Orchestra has now been revitalized on its own and promises to become an important and recognized factor in Washington music circles. This is as it should be. There have been physicians' orchestras in New York, Brooklyn, Chicago, Los Angeles, Cleveland, Boston, St. Louis, and Akron, as well as in Washington. Medicine has always rightly been identified with the arts. Colleagues such as Keats, Maugham, Doyle and Billroth are but a few of the many doctors who have distinguished themselves "afield." The father of Aesculapius, Apollo, played the lyre! All physicians know the medical value of music to the listener as well as to the performer.

The Presidents of the Medical Society are thankful and deeply appreciative of the honor bestowed upon us by "The Doctors' Symphonetta." We are looking forward to many similar performances by our Orchestra under the sponsorship of the Society's new Committee on Music, headed by Dr. P. S. Constantinople.

Paul R. Wilner, M.D.
President-elect, The Medical Society of the District of Columbia

Amy Rule's Bequest

"To create a rotating Medical Scholarship Fund to be awarded to deserving young women who neither indulge in the use of alcoholic liquors nor the use of toabcco in any form; and to assist and aid them while in a medical college"—this was the substance of the bequest which Dr. Amy J. Rule had provided in her will at the time of her death in 1946.

Only a few months ago those stipulations might have caused doctors to wonder where such abstemious young women might be found. With the publication of the Surgeon General's Report on Smoking, however, it is likely that more applicants may qualify. Even so, in her 1963 report Dr. Ruth Hartgraves, President of the American Medical Women's Association, stated that the Association had a number of applicants who could qualify under these terms, particularly in such medical schools as Loma Linda University, a Seventh Day Adventist institution.

Dr. Rule's bequest became newsworthy in the President's Report because she had found it necessary during her year of office to make a trip to Washington, D. C. to inspect the Amy J. Rule coöperative apartment. This apartment was recently acquired by the Association upon the death of Dr. Rule's last heir. The apartment has now been sold, and the money is being utilized for the purposes intended.

Dr. Rule was an Active member of the D. C. Medical Society from 1916 until her death. As a member of Branch One of the American Medical Women's Association, she had served as President for a term and had devoted to it her time and service throughout the years.

After graduating from Garfield Hospital Training School for Nurses in 1896 she served as Superintendent of the National Training School for Girls for 8 years. She received her medical degree from the Women's Medical College of Philadelphia in 1908. From 1908 to 1915 she was resident physician at the State Hospital at Norristown, Pa. Returning to Washington in the fall of the latter year, she began the private practice of medicine which she continued until 1942. Many of her patients were Chinese, especially among her obstetric patients, and she was loved and trusted by them. During her years of practice she served for more than 25 years on the medical staff of the Masonic and Eastern Star Home.

In a memorial to her, published in the January issue of the *Journal of AMWA*, Dr. Elizabeth Kittredge described her as a "woman with a warm personality—one of the true leaders who helped build up the respect for women physicians that they now hold." "She felt she had worked hard for her own education (perhaps against financial odds)," Dr. Kittredge observed, "and wished to help other young women who held ideals of behaviour. She felt very strongly about smoking and drinking, as demonstrated in the provision in her will."

Suggested Minimal Standards for the Diagnosis, Evaluation and Treatment of Pelvic Malignancies*

The Cancer Morbidity Review Committee of the Medical Society of the District of Columbia has functioned from January, 1958 to June 1, 1963. Gynecologic carcinoma was studied from records in 8 District of Columbia hospitals. Monthly case review meetings were held, open to all physicians. Selected cases were discussed from the standpoint of cancer detection, educational value, and qualitative care. The objective, as always, was to increase the salvage rate by better detection and more adequate treatment. Up to May 1, 1963, 1,100 case histories had been reviewed. A careful consideration of these case histories supplemented by additional information acquired by both patient and doctor interviews revealed much good work by physicians at all levels of detection and subsequent care. As in everything else, however, improvement is always possible. This Committee feels that this is particularly true as concerns preoperative evaluation and, recognizing this area of possible improvement, is of the opinion that suggested minimal standards would be helpful to all physicians who see gynecologic malignant disease.

Broad outlines of minimal criteria for pretreatment evaluation and minimal standards of treatment are suggested. The ready reference should be particularly useful for doctors who see few cancer patients and particularly the rarer forms of gynecologic malignant lesions. The standards recommended here are not original; they are based upon what seems best among the techniques practiced here and in other areas at this time. If the broad outlines of classification, diagnosis, pretreatment evaluation, and therapy were followed (with variations when indicated), the Committee thinks that this would greatly facilitate evaluation of the results of treatment and, it is hoped, improve the prognosis of patients with gynecologic malignant tumors.

General Considerations

All female patients who come to your office should have a complete physical examination at least every 6 months.

The examination should include:

I. Careful examination of the breasts (22 per cent of all cancers of the female occur in the breast).

II. Careful palpation of the abdomen for masses and areas of tenderness.

III. Careful and complete pelvic examination (bimanual, visual and rectovaginal).

- A. All suspicious lesions of the vulva, vagina and cervix should be examined histologically.
- B. Routine Papanicolaou smears should be taken semiannually.
  1. A Class I or II Papanicolaou smear is negative.
  2. A Class III Papanicolaou smear is suspicious. After confirmation and in the absence of a visible lesion, dilation and curettage and conization are indicated.
  3. A Class IV or V smear is positive. Investigation must continue until histologic proof of the presence of cancer is obtained.

IV. Papanicolaou smears should be taken routinely at the initial visit of all pregnant women. This is an opportunity to teach women to establish the habit of yearly or semiyearly pelvic examination as good health practice.

- A. A large segment of the female population would thus be screened yearly.
- B. The results of such smears are meaningful when the smears are carefully studied.

V. Irregular genital bleeding, especially in menopausal or postmenopausal women, is an indication for a Papanicolaou smear, dilation and curettage, punch biopsy, or conization of the cervix.

Following the above outline, which has been purposely simplified, will aid considerably in early detection of gynecologic malignancy.

Classification of Carcinoma of the Cervix

In the classification of primary carcinoma of the cervix the International Classification should be used:

Stage O. Carcinoma in situ of the cervix, also known as preinvasive or intra-epithelial carcinoma.

Stage I. Invasive carcinoma confined to the cervix.

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* The standards described herein are those recommended by the majority of the Cancer Morbidity Review Committee of the Medical Society of the District of Columbia, but they do not have the official endorsement of the Society.

Stage II. Carcinoma extending beyond the cervix but not reaching the pelvic wall or involving the vagina but not the lower third.

Stage III. Carcinoma reaching the pelvic wall in its parametrial extension or involving the lower third of the vagina.

Stage IV. Carcinoma involving the bladder or the rectum or both or extending beyond the limits previously described.

In practical application of staging the following should be considered:

1. The stage for classification is one made before therapy but may be altered by cystoscopy and proctoscopy.
2. Stage IV carcinoma of the cervix should be diagnosed only upon definite diagnosis of distant metastases or the presence of a positive bladder or rectal biopsy or fistula.

Classification of recurrent carcinoma of the cervix should be typed as follows:

Type A. Recurrent, neither bowel nor bladder involved.

Type B. Recurrent, bladder involved.

Type C. Recurrent, rectum involved.

Type D. Recurrent, rectum and bladder involved.

Type E. Recurrent, distant metastases.

Therapy of Carcinoma of the Cervix

Therapy of Stage O carcinoma of the cervix. The usual therapy of Stage O is surgical, the extent of the surgery being dependent upon the age of the patient and the need of preservation of the reproductive function. When the reproductive function is to be preserved Stage O may be treated by wide conization of the cervix, and if there is no invasion, these patients may be followed by Papanicolaou smear. Standard treatment, however, should be total hysterectomy, abdominal or vaginal, with a wide vaginal cuff.

Recommended Preoperative Studies for Patients Undergoing Radical Pelvic Surgery for Cancer

Routine	*If Indicated*
X-ray	
1. Chest	1. Bone survey
2. I. V. pyelogram	2. Upper and lower G.I. X-ray series
Laboratory	
1. CBC	1. CO_2, Cl, K
2. Urinalysis	2. Total protein
3. BUN	3. A-G ratio
4. Blood volume	
Special procedures	
1. Bowel preparation	1. Medical consultation
2. Cystoscopy	
3. Proctoscopy	

Therapy of Stage I carcinoma of the cervix. This can be treated equally well by irradiation therapy or by adequate surgery. The most common technique employs intracavitary radium and external X-ray therapy as described in the treatment of Stage II. The type of surgery employed is radical hysterectomy and node dissection.

Stage II carcinoma of the cervix. This is best treated by irradiation. In some instances and in the hands of a skilled operator very early lesions may be treated by surgery. In those cases in which the operation has apparently removed all tumor no subsequent X-ray therapy will be given. In those patients with positive nodes or histologic evidence of parametrial involvement, external therapy following complete healing of the wound should be given with a dose of approximately 3,000 r in 5 weeks.

In those patients requiring treatment by radiotherapy an attempt should be made to deliver radium so as to produce approximately 8,000 r to point A by means of intracavitary and vaginal sources. Point A is defined as a point 2 cm. cephalad and 2 cm. lateral to the lowest point of the uterine tandem which represents the external os. In practice these tissue doses require approximately 6,000 mg. hours of radium in a single application or 7,200 mg. hours in 2 applications. The applicator selected should be the one which seems best adapted to the individual case. External X-ray therapy should begin about the eighth day after the final radium treatment. The intent should be to give 4,000 r at the lateral pelvic wall in 4 to 5 weeks.

Patients treated primarily by radiation therapy should be carefully reëvaluated after 3 months. If evidence of cancer is still present, as determined by biopsy, a radical hysterectomy and lymph-node dissection should be carried out in most cases.

Stage III carcinoma of the cervix. This is best treated by irradiation. The lesions have infiltrated 1 or both parametria to the lateral pelvic wall. This extension precludes adequate surgery. Five-year salvage rates are not good even when adequate irradiation is given.

Stage IV carcinoma of the cervix. This requires great selection in the method of treatment. Where disease has extended anteriorly to the bladder or posteriorly to the rectum but has not become fixed to the lateral pelvic walls radical surgery may be employed with results probably more beneficial than treatment with X-rays or radium. In the former, where disease has extended to the bladder, surgery usually consists of anterior evisceration with transplantation of the ureters to the rectosigmoid or construction of an ileal bladder. In the latter, where disease has extended to the rectum, posterior evisceration is the procedure of choice. When both bladder and rectum are involved a complete evisceration may be performed. In patients with massive disease, with fixation to both pelvic walls, or when palliation alone is desired, radiation is the method of choice.

In those patients with recurrent carcinoma treatment must be entirely individualized; in general it is based on previous treatment and on the amount and sites of recurrent involvement.

Carcinoma of the Endometrium

This classification also should be based on preoperative findings, this term being accepted to include the results of exploration of the uterine cavity with sound or curet.

Stage O. Adenomatous hyperplasia with histologically in situ carcinoma of the endometrium.

Stage I. Uterus not enlarged; no evidence of cervical involvement.

Stage II. Enlargement of the fundus to the size not over that of a 2½-month gestation, with total length of canal 10 cm.

Stage IIa. Enlargement without involvement of the cervix.

Stage IIb. Involvement of the cervix.

Stage III. Enlargement of the fundus to a size over 10 cm. in length of canal or involvement of parametrium, vagina or adnexa.

Stage IV. Involvement of the bowel, bladder, omentum, parietal peritoneum or distant metastases.

The classification of recurrent carcinoma of the endometrium should include:

Type A recurrent. Recurrence in the corpus, cervix, vagina or vulva after radiation failure.

Type B recurrent. Involvement of the bladder.

Type C recurrent. Involvement of the rectum or intestine.

Type D recurrent. Involvement of the bowel and bladder.

Type E recurrent. Distant metastases.

Recommended preoperative studies for patients undergoing radical pelvic surgery for cancer of the endometrium are the same as for carcinoma of the cervix.

Therapy of Carcinoma of the Endometrium

Therapy of Stage O. Simple total hysterectomy and bilateral salpingo-oöphorectomy.

Patients for treatment should be divided into 2 groups, those to receive preoperative radium and those to receive immediate hysterectomy. Immediate hysterectomy should be done when there is no uterine enlargement nor involvement of the cervix, or when the enlargement is due to fibromyomata or adnexal disease. When uterine enlargement does not exceed 10 cm. in length of cavity, radium should be inserted preoperatively, with a dose of 6,000 r in the endometrial cavity. Postradium hysterectomy should be carried out 6 weeks after radium application (some physicians prefer a 3- to 4-week interval).

Following immediate hysterectomy, postoperative X-ray therapy should be given in cases in which the cervix or extra-uterine areas are involved with carcinoma as based on pathologic findings.

Treatment of advanced cases of endometrial carcinoma, clinical Stages III and IV, is not satisfactory by either irradiation and/or surgery, and the outlook for cure in this type of patient is remote. In this class of patients palliation is about all that can be accomplished.

Carcinoma of the Ovary

Classification is arrived at on the basis of conditions found at operation. The only exception is made in those regarded as absolutely inoperable, i.e., Stage IV.

Stage O. Papillary cystadenoma of doubtful malignancy.

Stage I. Grossly limited to 1 or both ovaries, without significant break through the external surface.

Stage II. Presence on the outer surfaces of the tumors with definite break-through of the capsule.

Stage III. Extension to the pelvic peritoneum, nodes, or uterus without involvement of other organs.

Stage IV. Involvement of the bowel, bladder, or omentum, or distant metastases.

Classification of recurrent carcinoma of the ovaries is:

Type A. Involvement outside of the peritoneal cavity, such as the vaginal vault, vagina, or abdominal incision.

Type B. Involvement of the bladder.

Type C. Involvement of the bowel.

Type D. Involvement of the bowel and bladder.

Type E. Distant metastases.

Recommended preoperative studies for patients undergoing ovarian surgery are the same as for carcinoma of the cervix.

Therapy of Carcinoma of the Ovary

The treatment of ovarian carcinoma is principally by surgery with or without postoperative irradiation or chemotherapy. In Stage I, when carcinoma is confined to the ovary, the 5-year survival rate is 64.4 per cent. In Stage II, when carcinoma has extended to the fallopian tubes, uterus, broad ligament or other ovary, the 5-year survival rate is 42.4 per cent. For the advanced stages only palliation can be obtained.

Exploratory operation is indicated in all those cases with the rare exception of those unsuitable for medical reasons or those completely inoperable because the gastrointestinal or genitourinary tract is involved. Therapy should include complete hysterectomy, removal of both ovaries and tubes, and removal of the omentum and any implants which can be conceivably removed without impairing the patient's general function.

Postoperative X-ray therapy may be given to those patients in whom the tumor obviously extends beyond the capsule of the ovary. This should begin on approximately the tenth postoperative day with an attempt to give approximately 3,000 r throughout the pelvis and lower half of the abdomen. Additional therapy should be given as indicated by exploratory laparotomy. Postoperative use of chemotherapeutic agents, such as Thio-Tepa®, may well be as effective as postoperative X-ray therapy, but they should be used in connection with a definite program of research. The indiscriminate use of therapeutic drugs makes further treatment by X-rays hazardous and unpredictable.

Carcinoma of the Vagina

Classification in so far as possible coincides with that of the cervix:

Stage O. Intra-epithelial.

Stage I. Carcinoma of the vaginal mucosa under 2.5 cm. in diameter.

Stage II. Lesions over 2.5 cm. in diameter with a certain amount of parametrial involvement.

Stage III. Carcinoma of the vagina with extension to the side wall of the pelvis or with definite involvement of the inguinal nodes.

Stage IV. Involvement of the bowel or bladder or distant metastases.

Recommended preoperative studies for patients undergoing radical surgery for carcinoma of the vagina are the same as for carcinoma of the cervix.

Therapy of Carcinoma of the Vagina

Therapy of carcinoma of the vagina depends on the extent and location of the lesion. The treatment in general has been highly unsuccessful, and no uniform method has evolved.

Lesions located in the upper vagina metastasize by the same route as carcinoma of the cervix, i.e., to the obturator, hypogastric and iliac lymph nodes. If the bladder or rectum is not involved the treatment of choice is total hysterectomy, bilateral salpingo-oöphorectomy, pelvic lymph node dissection, and vaginectomy. Lower vaginal lesions metastasize to the inguinal nodes as does vulvar carcinoma, and to completely extirpate the disease surgically, radical vulvectomy, superficial inguinofemoral and deep pelvic lymph-node dissection along with total vaginectomy must be done. A functional vagina may be constructed at the time of definitive surgery or at a later date.

Transvaginal irradiation, radium plaques, and a central radium tandem have been used with variable success but with a high incidence of radiation necrosis and fistulization.

In the event that the bladder or rectum is involved treatment should be by either anterior, posterior, or total exenteration as indicated.

Carcinoma of the Vulva

The classification is based on size of the primary lesion and the extent of node involvement*:

Stage O. Intra-epithelial carcinoma, Bowen's disease, and similar lesions.

Stage I. Carcinoma limited to the vulva and under 2.5 cm. in diameter.

Stage II. Carcinoma limited to the vulva, but over 2.5 cm. in diameter with no nodes involved.

Stage III. Clinical involvement of the nodes in the inguinal region but with no distant metastases.

Stage IV. Extension to the bowel or bladder or distant metastases.

Recommended preoperative studies for patients undergoing radical surgery for carcinoma of the vulva are the same as for carcinoma of the cervix.

Therapy of Carcinoma of the Vulva

In situ carcinoma of the vulva is treated by simple, wide excision of the vulvar lesion.

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* This classification recognizes limitations in detecting nodes as criteria for staging.

Treatment of invasive carcinoma of the vulva is by radical vulvectomy with bilateral superficial and deep inguinal-node dissection. Carcinoma of the vulva does not respond well to treatment by irradiation. However, postoperative X-ray therapy may be given to the iliac regions in those cases in which the deep inguinal nodes are found to be involved. No X-ray therapy should be given if the nodal tissue in these areas is not involved.

The Role of Chemotherapy in Female Genital Carcinoma

With the exception of the prophylactic use of anticancer drugs at the time of cancer surgery, chemotherapy for female genital carcinoma has been reserved for advanced uncontrolled tumors. Since the chemotherapy of cancer is a relatively new and expanding field the following suggestions are made only in the light of our present knowledge and may be subject to change in the future. However, it is no longer necessary to abandon patients with advanced cancer.

Carcinoma of the ovary has proven most responsive to chemotherapeutic management, and patients with widespread metastases may be palliated for months or years by maintenance chemotherapy. Although tumors of all cell types show a high frequency of response, the prognosis in papillary cystadenocarcinoma of the ovary is probably the best. The use of nonvesicant alkylating agents such as Thio-Tepa or Cytoxan® administered by local injection into serous cavities, if fluid is present, or into tumor masses is recommended. The dosage is guided by weekly blood counts and can be ascertained from the drug packages. Therapy should be continued at weekly intervals for 1 year, after which the treatment interval may be extended gradually if the tumor is well controlled. Oral chlorambucil and TEM® (triethylenemelamine) have also been used with shorter responses. Adjuvant therapy with small doses of adrenocortical and/or adrenocorticotropic hormones such as cortisone, 12.5 mg. twice daily by mouth and Acthar Gel®, 40 units I.M. weekly, helps to maintain the hematopoietic status and general well-being of the patient.

Metastatic adenocarcinoma of the corpus or of the uterine cervix is amenable to chemotherapy. If metastatic to the lungs only, the intravenous route of therapy should be used, and the drugs recommended are the same as those for ovarian carcinoma. If the most troublesome metastases are local an attempt should be made to inject anticancer drugs locally, since larger and more effective doses can be used by this route. Again, treatment must be maintained for prolonged periods in order to achieve prolonged control.

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Epidermoid (or squamous) carcinoma of the cervix is relatively nonresponsive to chemotherapy with certain exceptions. In some patients with pulmonary metastases the neoplastic process may be slowed by intravenous injection of nonvesicant alkylating agents, as Thio-Tepa or Cytoxan, given at weekly intervals. The use of intra-arterial or locally administered antimetabolites had best be managed by a chemotherapist.

Epidermoid carcinoma of the vulva or vagina, like epidermoid carcinoma of the cervix, is relatively resistant to chemotherapy. However, since some cases will respond, a trial of chemotherapy is indicated but management by a chemotherapist is recommended.

ACKNOWLEDGMENT: This study was made possible through a grant from the District of Columbia Division of the American Cancer Society, and its success was due largely to the efforts of Mrs. Virginia Fidler, who served as Secretary to the Committee through the life of the study.

Health Dept. Notes

School-centered Rehabilitation Program for Pregnant School-age Girls

A school-centered rehabilitation program for teenage pregnant girls in Washington, D. C. started in September 1963. This project is financed by a grant from the U. S. Children's Bureau, and is providing an opportunity for the D. C. Department of Public Health, the D. C. Department of Public Welfare, and the D. C. Board of Education to participate jointly in an attack on some of the medical, educational, and social problems associated with unmarried pregnant girls of school age.

In 1962 reports indicated that 904 infants in the District were born to mothers 16 years of age and under. According to school policy, these girls leave school as soon as a diagnosis of pregnancy is made. Unfortunately, very few girls return to continue their education after delivery. The project was planned to demonstrate that continuity of education in a special school setting was possible during the prenatal period and many girls would return to regular school after the baby was born.

Before enrolling in the project a girl must present a medical certificate stating she is pregnant, her expected date of delivery, and her plans for prenatal care and delivery. For those who do not have private medical care, prenatal care is available at Gales Maternity Clinic of the Department of Public Health, and delivery is performed at D. C. General Hospital. Active social service case work with the girls and their parents is provided at the school.

The school was planned for a maximum enrollment of 60 girls with a staff of a supervisor, 3 secondary school teachers, 3 social service case workers, and a part-time psychologist. Students participate in 7 periods of classwork each day.

The importance of continued prenatal care is stressed throughout the program, with the hope of reducing the high infant mortality rate and prematurity rate associated with birth to young mothers in the 16 years and under age group. In addition there is information and discussion on personal and family living, human reproduction, nutrition during pregnancy, and infant care.

When the school opened in September of last year, 168 girls applied for admission. Priorities in selection were given to the younger girl and those early in pregnancy. As the girls delivered, the vacancies were filled. By the end of December 85 girls had been enrolled out of a total of 327 who applied for admission. It is expected that 125 girls will be enrolled by the end of the first year of the program. The school plans to continue with a summer session during June and July.

The majority of the girls seem interested and are progressing satisfactorily in their school work. The distribution by age of the girls enrolled is as follows:

Age	No. Enrolled
13	2
14	15
15	33
16	24
17	11
	—
	85

Referrals to the project may be made directly by the girl and her parents, school officials, social service workers in the Gales Maternity Clinic of the Department of Public Health, and practicing physicians. For additional information physicians may contact the Project Director, Mrs. Elizabeth Goodman, Principal of the Sharpe Health School.

Murray Grant, M.D., D.P.H.
D. C. Director of Public Health

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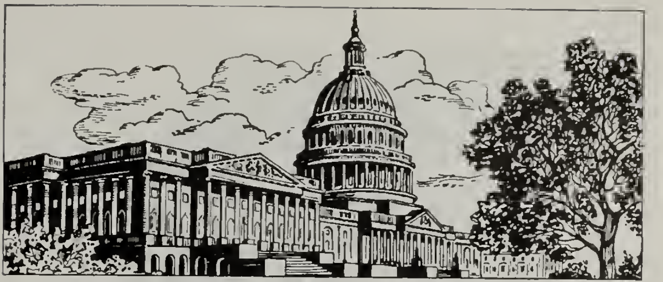


NEWS & PERSONALS

Boards & Committees

The Executive Board of the Medical Society of the District of Columbia held its regular meeting, February 17, 1964. Dr. Victor R. Alfaro, Chairman, presided. Present were Drs. C. Willard Camalier, Jr., Karl C. Corley, J. Spencer Dryden, Harold M. Hobart, Edward W. Nicklas, Josephine E. Renshaw, Duane C. Richtmeyer, Paul R. Wilner, and Mr. George Cooley, Secretary. Also invited to the meeting were Drs. George W. Ware and Calvin T. Klopp. The Chairman called the meeting to order at 7:45 p.m.

Committee Meetings: The Secretary reported the following committee meetings held since the Board last met:

January	21	Grievance Committee
	21	Committee on Public Policy
	22	House Committee
	27	Committee on Mental Health
	29	Committee on Aging
February	4	Committee on Constitution & By-Laws
	5	Program, Annual Scientific Assembly
	7	Review Board for Prepaid Medical Care Benefits
	8	Committe Chairmen
	11	Committee on Public Information and Education
	12	Board of Credentials
	12	Committee on Medical Ethics and Professional Conduct
	13	Medical Bureau Committee

Finance Committee: The Board approved the report of the Finance Committee as submitted. It was voted to transfer 50 per cent of the excess of the MEDICAL BUREAU's income over expenditures to a special BUREAU Savings Account to be used for BUREAU furnishings, etc.

At the recommendation of the Finance Committee the following motions were approved:

1. To continue membership in the Conference on Presidents.

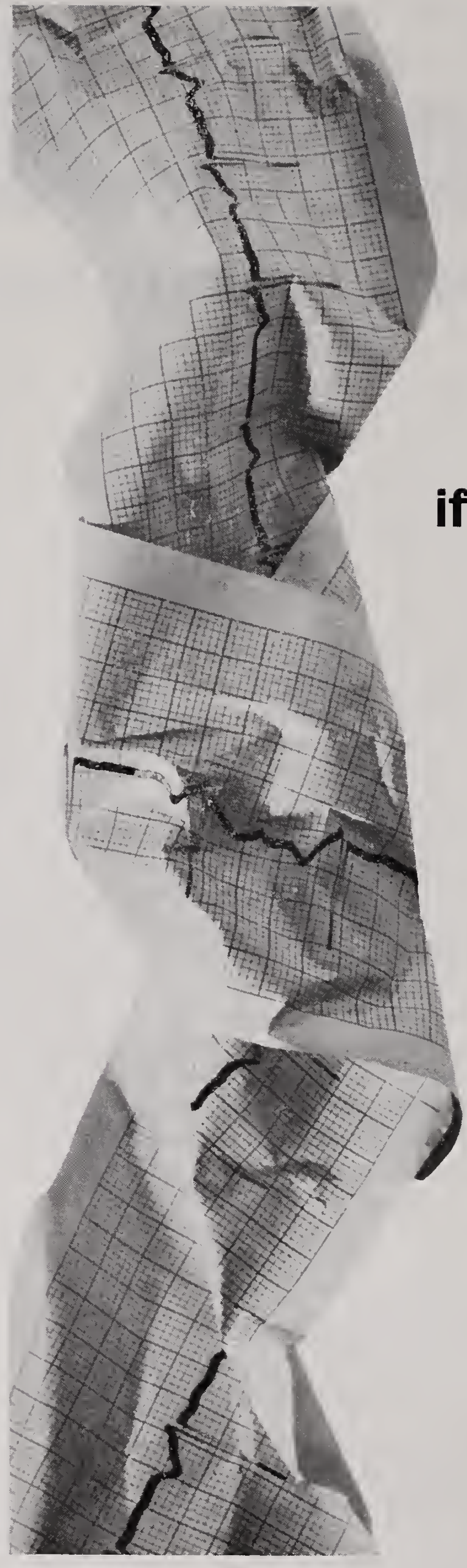
2. To pay the $400 bill submitted by Wilkes and Artis, attorneys, for an opinion regarding the leasing of 1710–1718 M Street.

3. The Chairman of the Board, who is also Chairman of the Finance Committee, or the Secretary-Treasurer were authorized to open such accounts as are necessary for the conduct of the Society's business and to sign all checks or withdrawals required in conducting all business of the Medical Society of the District of Columbia. Further, the Secretary-Treasurer was authorized to open a new account for the building fund and a new account for reimbursable funds, such as AMA dues, Blue Cross-Blue Shield premiums, etc.

Smoking and Health: Dr. Ware and Dr. Klopp attended the Board meeting to discuss what the Society might do in reference to the Federal Government's Report on Smoking and Health. Dr. Ware described the antismoking clinics proposed by the Cancer Society. These clinics would actually run through the Health Department for the purpose of assisting people in stopping the smoking habit. There would also be research projects to determine the effectiveness of certain drugs now being used for this purpose. It is expected to have 3 groups of 40 persons each. All patients would be referred by physicians and would be expected to come with a chest film and EKG report. The project is to be financed by the American Cancer Society.

It was generally agreed that the idea proposed by Dr. Ware should be approved in principle, but that it should not be limited to Cancer Society sponsorship alone, since other diseases are equally involved. It was suggested that the Heart Association, Tuberculosis Association, and others be asked to participate.

The Board voted that the President be authorized to name an Ad Hoc Committee on Smok-



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ing and Health, to consist of the following physicians and any others the President might wish to ask: Drs. Klopp, Ware, J. Winthrop Peabody, Sr., O. Hugh Fulcher, E. Raymond Fenton, William L. Jamison, Paul F. Jaquet, Andrew G. Prandoni, Azad J. Vosger and John J. Leahy.

The function of this Committee will be to develop a program for the Society and to assist in coördinating the activities of various other agencies interested in the problem of smoking and health.

Board of Credentials: The following recommendations of the Board of Credentials were approved:

Active Members

Murray Grant, 300 Indiana Avenue, N.W.
George White Hardman, 2121 Pennsylvania Avenue, N.W.
Earle Silber, 5415 Connecticut Avenue, N.W.

Associate Members

Charles David Connor, 5813 Landover Road, Cheverly, Md.
Robert Edward Tolson, Jr., 5300 Westbard Avenue, Bethesda, Md.

Resident-Intern Member

Donald William Datlow, 3903 Southern Avenue

Transfers

Active to Associate: Arthur S. Cain
Active to Special: Dorothy Donley Dowd

Resignations

Active: Paul W. Yost
Associate: Karl Hayden Wood

Liaison with the Woman's Auxiliary: The Board approved the following motions:

1. That the President be authorized to appoint an Advisory Committee to the Auxiliary. This was in line with a suggestion from the National Auxiliary.

2. That the President be authorized to appoint the President and/or the President-elect of the Auxiliary as consultant(s) to the House Committee.

Central Charge Service—Medical-Dental Division: A report from the Committee on Medical Ethics and Professional Conduct approving this service was discussed at some length. However, the Board voted to reiterate its previous statement, that it does not believe that the use of the Central Charge Service by physicians is in the best interest of physician-patient relationships and does not approve its use by physicians as a billing service.

Washington Hospital Center: The Washington Hospital Center has requested support from the Society for its new long-term facility. The Board decided that since it now has created a Hospital Relations Committee, the matter should be referred to this Committee for consideration and report back to the Board.

Directory of Clinical Psychiatric Facilities (and Psychiatrists): Approval was given to place a note in the monthly newsletter in reference to the availability of "A Directory of Psychiatrists and Clinical Psychiatric Facilities in the Washington Area."

Miscellaneous Business

1. The Secretary read the letter submitted to the Senate Committee on the District of Columbia in support of Bill S.2390.

2. A letter from the Maimonides Society requesting a contribution for its Student Fund (dentists) was referred to the President for disposition.

3. Dr. Clifton R. Brooks was appointed to attend the AMA Conference on Air Pollution in Chicago, May 1 and 2, as a representative of the Society.

4. The President reported that he had named Dr. Clifton R. Gruver and Dr. Frank S. Bacon to attend the National Congress on Medicine and Pharmacy in Chicago, March 12 and 13. Their expenses will be paid by the AMA.

5. The President reported that Drs. Richard T. Sullivan, Oscar B. Hunter, Jr., William H. Cooper, one other physician, and himself would represent the Society at the meeting of the American Medical Political Action Committee in New York at the expense of AMPAC.

6. The Secretary reported that the Trustees for the Society's Pension Plan have named Mr. Richard V. McNamara, Vice President of Union Trust Company, to succeed Mr. G. Elmer Flather, who resigned as Trustee upon his retirement from the Union Trust Company.

7. Dr. Hobart reported that a meeting was in progress in Montgomery County (Maryland) that evening, with Dr. William S. Anderson, Chairman of the Medical Society's Committee on Poliomyelitis, in attendance. Details for a mass polio immunization program were to be discussed and procedures decided upon.

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Meetings

The American Association for the History of Medicine will present a program of wide general interest, and of special interest to medical historians, at its **37th Annual Meeting,** to be held in Bethesda, Md. and Washington, D. C., April 30–May 2, 1964. The first Scientific Session is scheduled at the National Library of Medicine for Thursday afternoon, with 2 all-day meetings to follow, one at the Clinical Center of the National Institutes of Health on Friday and at the Museum of History and Technology—Smithsonian Institution on Saturday.

The Annual Dinner will be held at the Sheraton-Park Hotel on Friday evening, May 1. The guest speaker will be Dr. Leona Baumgartner, of the Agency for International Development.

The Presidential Address on "New Diseases" will be delivered by Dr. Lloyd G. Stevenson, President of the Association, at the first afternoon session, April 30. Dr. Stevenson, formerly Dean of Medicine at McGill University, is now Professor of the History of Medicine at Yale University.

A highlight of the program is the Symposium Friday morning on "The Federal Government and Health Research, 1900–1960," which will consist of 4 papers. Dr. James A. Shannon, Director of the National Institutes of Health, will lead the discussion to follow.

Space does not permit a full report of the papers to be presented at this meeting, but the following list indicates the wide range of subject material:

"European Impressions of Japanese Medicine during the Tokugawa Period"
"Samuel Johnson's Medical Illness and His *Aegri Ephemeris*"
Garrison Lecture: "Women and Medicine in Ante-bellum America"
"Descartes as a Psychotherapist"
"Benjamin Rush's Medical Use of the Moral Faculty"
"The Scientific Background of the Gamma Globulin Field Trials: The Personal Account of Dr. Tom Rivers"
"A Brief Social History of Coal Miners' Medical Care Arrangements"
"The First Known Independent Treatise on Cosmetology in Spain"
"The Struggle for Professional Registration of Nurses in the British Commonwealth"
"Darwin's Prolegomena to Psychosomatic Medicine"
"The Chester Beatty Medical Papyrus; the Earliest Known Treatise Completely Devoted to Anorectal Diseases"
"Michael Mayer, Professor of Anatomy: A Chapter in the History of Vienna's School of Medicine"

A complete program may be secured from James H. Cassedy, Ph.D., a member of the Program Committee and Chairman of the Committee on Local Arrangements. His address is 5405 Harewood Road, Bethesda, Md. 20014; telephone 496-7771. The registration fee is $5.00.

The Medical Society of the District of Columbia is one of the medical organizations participating in this event, with Dr. Wallace M. Yater representing the Society on the Committee on Local Arrangements. Other members of this Committee include Dr. Pearce Bailey, Dr. Robert B. Livingston, and Dr. Peter D. Olch, of NIH; Colonel John B. Coates and Captain Lawrence C. McHenry, of Walter Reed Army Medical Center; Dr. Richard H. Follis, Jr., of the Veterans Administration; and Dr. W. Montague Cobb, of Howard University College of Medicine.

The Spring Scientific Assembly of the Maryland and District of Columbia Chapters of the American Academy of General Practice will be held at the Shoreham Hotel and Motor Inn on Saturday and Sunday, May 16 and 17.

Dr. Charles P. Crimy, President of the Maryland Academy of General Practice, will welcome the registrants at the opening session, May 16. The entire day's program will be devoted to the subject, "Tension and Spasms: Management of Associated Problems." Dr. Joseph F. Fazekas, of Washington, will participate in the morning session and will discuss "Cerebral Vascular Spasm."

Two other Washington physicians will present papers during the afternoon. Dr. Frank Talbot will talk on "Angina Pectoris: Management of the Spasm and Associated Tensions," and Dr. Joseph B. Sheffery will read a paper on "Dysmenorrhea and Premenstrual Tension."

Dr. W. Robert Perkins, Jr., President of the D. C. Academy of General Practice, will open the meeting Sunday at 9:30 a.m. The morning will be devoted to a panel discussion on "Low-back Problems." Dr. C. David Cooper will speak on "Differential Diagnosis from the Standpoint of the Internist."

Some of the guest speakers will be Dr. Wilfred Dorfman, of the State University of New York Medical School, Brooklyn; Dr. Bernard Bressler, of Duke University; Dr. Winthrop M. Phelps, of the Children's Rehabilitation Institute for Cerebral Palsy, Reisterstown, Md.; Dr. Robert E. Ryan, of St. Louis University Medical School;

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Dr. Victor W. Groisser, of Seton Hall College of Medicine; Dr. Henry I. Russek, Consultant, Public Health Service, Staten Island, N. Y.; Dr. Allen S. Russek, of the New York University College of Medicine; and Dr. Alexander H. Hirschfeld, of Wayne University College of Medicine.

The Fifth Annual Cardiac Symposium, sponsored by the Montgomery County Tuberculosis and Heart Association, will be an all-day meeting at the Clinical Center of the National Institutes of Health, Thursday, May 21. The theme this year is "New Methods in Cardiac Evaluation." The program is still tentative but acceptances are expected from most of the outstanding speakers who have been invited to participate.

A panel discussion on "New Methods in Evaluating the Borderline Cardiac" will be held during the morning, to be moderated by Dr. Samuel M. Fox III, of the Public Health Service. Discussants will include Dr. Lawrence E. Lamb, Brooks A.F.B. Aerospace Medicine Laboratory, San Antonio, Texas; Dr. Etheridge E. Eddleman, Jr., of the University of Alabama Medical Center; Dr. Benjamin M. Baker, Jr., of Johns Hopkins University School of Medicine; and Dr. Rashid Massumi, Chief of Cardiology at D. C. General Hospital.

The afternoon will feature another panel discussion on "Present Status of Renal Homotransplantation in Man." Moderator will be Dr. Louis Gillespie, Jr., of the National Heart Institute, and discussion will be led by Dr. David M. Hume and Dr. Joseph H. Magee, both of the Medical College of Virginia (Richmond).

A number of papers will be presented by such authoritative internists as Dr. Brooke Roberts, of the I. S. Ravdin Institute (Hospital of the University of Pennsylvania); Dr. Russell E. Morris, of Johns Hopkins Hospital; Dr. Victor A. McKusick, of Johns Hopkins University School of Medicine; and Dr. John B. Hickam, of Indiana University Medical Center.

Children's Hospital of D. C. will present its **Annual Postgraduate Course,** May 20, 21, and 22, on the subject of Pediatric Radiology. The topics to be presented will include uroradiology, neuroradiology and radiologic aspects of malignancies, tuberculosis and other chest diseases, and gastrointestinal disorders. This course is sponsored by the Hospital in conjunction with the

Departments of Pediatrics of Georgetown and George Washington University Schools of Medicine. The tuition fee is $75, with advance registration essential.

A highlight of the 3-day meeting will be the **Joseph S. Wall Memorial Lecture** on "Congenital Malformations," to be delivered by Dr. Josef Warkany in the Wall Memorial Auditorium on Friday, May 22, at 1 p.m. Dr. Warkany is Professor of Research Pediatrics at the College of Medicine of the University of Cincinnati. This Lecture is open to all interested physicians.

The 1964 Kober Lecture will be held on Thursday evening, April 23, in the Gorman Auditorium of the Georgetown University Hospital. The speaker will be **Dr. Frank L. Horsfall, Jr.,** President and Director of the Sloan-Kettering Institute for Cancer Research. He will speak on "Some Facts and Fancies About Cancer." All members of the D. C. Medical Society are urged to attend this outstanding annual event.

The Medical and Chirurgical Faculty of the State of Maryland will hold its **166th Annual Meeting** at The Alcazar in Baltimore, May 6, 7 and 8. The program planned for this year will be a "Family Physicians' Conference," not directed to research. On Friday morning Dr. Leon Yochelson, of Washington, will speak on a topic related to psychiatry.

Dr. Edward R. Annis, President of the American Medical Association, will be guest of honor and speaker at a dinner, Wednesday evening, at the Sheraton-Belvedere Hotel.

A complete program may be secured by writing to Dr. J. B. Workman, 1211 Cathedral Street, Baltimore, Md. 21201. All members of the D. C. Medical Society are invited to attend the sessions.

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General News

The Medical Staff of Children's Hospital held its annual dinner at the Hospital, February 19. Following the dinner, Dr. Robert A. Aldrich, Director of the National Institute of Child Health and Human Development, delivered the fifth Annual Edgar P. Copeland Lecture. His subject was "Children's Medical Centers and Metropolitan Responsibilities."

DR. WILLIAM S. ANDERSON, Children's Hospital "Man of the Year."

Especially honored at the staff dinner was Dr. William S. Anderson, who was named "Man of the Year." Dr. Anderson, who joined the Hospital's medical staff in 1935, was honored for his leadership in the community and for his outstanding contributions to the Hospital. During the many years he has been associated with Children's, Dr. Anderson has chaired the Department of Medicine, and he was Chairman of the Medical staff from 1958 to 1961. He has served on the Executive Committee of the Board of Directors since 1958 and is presently serving as President of the Children's Hospital Research Foundation.

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Three physicians were elevated to the Senior Advisory Staff and received Certificates of Merit. They were: Dr. Harry Ford Anderson, a member of the staff since 1927; Dr. William H. Beard, on the staff since 1948; and Dr. Allen S. Lloyd, who joined the staff in 1949.

Dr. Milton M. Greenberg is the new Chairman of the Medical Staff. The retiring Chairman, Dr. John A. Washington, who served from 1961 to 1964, was honored at the dinner and his work lauded by Dr. Greenberg. Vice Chairman of the staff is Dr. Gerald McAteer; Dr. Sydney Ross was reëlected Secretary-Treasurer. The medical staff of the Hospital numbers 802 physicians and surgeons.

The Program Committee of the **Section on Otolaryngology of the Southern Medical Association** announces that abstracts of papers will be accepted up to May 1, 1964 for consideration for presentation at the 58th Annual Meeting of SMA, to be held in Memphis, Tennessee, November 16–19, 1964. Further information may be secured from Dr. Neil Callahan, 506 Professional Building, Portsmouth, Virginia 23704.

Dr. Leslie French, Director of Medical Education at Sibley Memorial Hospital, calls attention to the **Sibley Hospital Library** as an important part of the hospital plant. The Main Library is located in the west wing of the Lucy Webb Hayes Building. Registrants who have a Lending Privilege Card may negotiate the loan of selected printed matter. The Library enjoys affiliation privileges with the libraries of American University and Georgetown University, the National Library of Medicine, and the D. C. Public Library. A librarian is always in attendance during library hours at Sibley, which are from 9 a.m. to 4 p.m. and from 6 to 10 p.m., Monday through Friday, and 1 to 5 p.m. on Saturday.

A new **Public Health Advisory Council** was announced, February 18, by Dr. Murray Grant, Health Director for the District of Columbia. The 21-member group will act in an advisory capacity to the Health Officer rather than to the District Commissioners, as in the past.

Appointed for 3 years were Dr. Frank E. Wilson, Dr. Reginald G. James, Mrs. Dorothy E. Reese, and Messrs. Watson B. Rulon, Jr., Milton C. Denbo, Fred McNamara, and Sterling Tucker.

Seven members, appointed for 2 years, were: Dr. Robert S. Jason, Dr. Daniel F. Lynch, Mr. William Calomiris, the Reverend Andrew Fowler, Mrs. Alanson Willcox, Mrs. Marie Rogers, and Mrs. Mark H. Cornell.

Named to serve 1 year were: Dr. James A. Marshall, Mrs. Clara Schiffer, Miss Pearl Bierman, Mr. Charles C. Johnson, Jr., Dr. Dorothy Ferebee, Mrs. Arthur Blacklow, and Mr. Philip J. Daugherty.

The first meeting was held, February 25, at the Municipal Center. Dr. Wilson, Executive Director of the Association of Military Surgeons of the United States, was elected Chairman of the Council, and Dr. Lynch, Vice Chairman.

Meritorious Public Service Awards were presented by Commissioner John B. Duncan to 5 retiring Council members, namely, Dr. John W. Lawlah, Miss Aliene C. Ewell, Mrs. Edward B. Morris, Mrs. William M. Buckner, and Mrs. Richard C. Simonson.

Dr. Roy P. Lindgren, of the National Institutes of Health, was appointed **Health Officer for Montgomery County (Md.),** February 4, by the Montgomery County Council. He succeeds Dr. William J. Peeples, who resigned some time ago.

Dr. Lindgren received his training in public health at Harvard School of Public Health. He was deputy State Health Officer in New Mexico from 1953 to 1955. Since then he has served in various posts with the U. S. Public Health Service, and for the past 4 years as Assistant Chief in the Division of Research Grants at NIH.

The St. Luke's Physicians' Guild elected new officers, February 26, at a meeting in the Medical Society's auditorium. They are:

Dr. Peter N. Lombard, of Silver Spring, Md., *President;* Dr. Paul B. Cornely, *Vice President;* and Dr. Robert H. Parrott, *Secretary-Treasurer.*

New Board members elected were Dr. Paul F. Jaquet, the retiring President, and Drs. Oscar B. Hunter, Jr., William F. Colliton, Jr., Raymond A. Osbourn, J. Blaine Fitzgerald, Louis J. Goffredi, Lawrence B. McCaleb, and Francis P. Hannan.

The Northern Virginia Society of Internal Medicine elected officers at its January meeting. Serving during 1964 are:

Dr. Bertram C. Snyder, Arlington, *President;* Dr. Robert L. Guillaudeu, Falls Church, *President-elect;* Dr. Sidney A. Tyroler, Arlington, *Secretary;* Dr. William L. Stone, Arlington, *Treasurer;* and Dr. John W. Roark, Alexandria, *member-at-large.*

Dr. Snyder and Dr. Roark are Associate members of the D. C. Medical Society.

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The Pan American Medical Society of D. C., at its meeting in December, 1963, elected the following officers:

Dr. Daniel F. Lynch, *President;* Dr. Efrain Guerrero, *Vice President;* Dr. Seymour Alpert, *Secretary;* and Dr. Jorge B. Morales, *Treasurer.*

In addition to the officers, the members of the Executive Committee are Dr. Charles J. Savarese, Jr., and Dr. Jonathan M. Williams.

The Society meets 4 times a year. The next meeting, on April 25, will be held at the Pan American Union and ladies will be invited.

Serving the **D. C. Association of Medical Assistants** this year are the following officers: Mrs. Gloria Harper (Dr. J. Rogers Young), President; Mrs. Imogene Warner (Dr. Samuel Dodek), President-elect; Miss Gail Thornburg (Dr. Jack Kleh), Secretary; and Miss Mary Weimer (Dr. Ray Brown), Treasurer. The names of the physicians in parentheses indicate where these persons are employed.

Senator Lister Hill, of Alabama, received the **Award of Merit of the American Heart Association** during ceremonies at the Sixth Annual High School Heart Research Program, February 8. The award recognized his legislative efforts to improve the Nation's health and his sponsorship of a Congressional resolution proclaiming February as Heart Month. Dr. W. Proctor Harvey, President of the Washington Heart Association, presented the award to Senator Hill. The program was held in the auditorium of the District Medical Society's building.

Dr. Robert H. Felix, Assistant Surgeon General and Director of the National Institute of Mental Health, has been promoted to 2-star rank, which is comparable to Major General in the Army. He formerly held the 1-star rank, equivalent to Brigadier General in the Army. Dr. Felix was Chief of the Bureau of Mental Hygiene when this Bureau became the National Institute of Mental Health in 1949. At that time he was made Director of the Institute.

Correction: Your Editorial Staff regrets the incorrect listing of Mr. Thomas R. Turner as "doctor" in the January issue of the MEDICAL ANNALS, page 38. Mr. Turner was one of the guest lecturers at the Postgraduate Medical Seminars and Technical Workshops in Gynecologic Cytology, which were conducted at the Columbia Hospital for Women, January 13–17.

Personals

Dr. William P. Herbst, who has been the Chairman of the Research Committee of the American Urological Association since it was instituted in 1956, has recently been appointed a member of the Genitourinary Section of the Medical Division of the National Research Council. This Division is being established by the National Research Council at the request of the Surgeon General of the Army Leonard Heaton for the purpose of studying venereal disease, calculus disease, and other problems relating to the health of the Army.

Dr. Joseph F. Sadusk, Jr., has been appointed Director of the Bureau of Medicine of the Food and Drug Administration and assumed his new post on April 1. Dr. Sadusk comes to his new post from George Washington University, where he has been Chairman of the Department of Preventive Medicine and Community Health at the School of Medicine and Director of Clinics at the Hospital. Previous to his George Washington assignment he was Professor of Clinical Medicine at Stanford University from 1949 to 1962. Dr. Sadusk is a graduate of Johns Hopkins University.

Dr. Charles Stanley White, dean of Washington surgeons, was honored by the Pan American Medical Society of Washington, D. C., at a dinner meeting, Sunday, March 1, at the Army-Navy Club. Dr. Daniel F. Lynch, President of the Society, presided at the meeting and presented Dr. White with a Citation of Merit. Dr. Lynch recalled that Dr. White, who is a Life member of the Society, throughout his long career has given unselfishly and unstintingly of his time and talents to entertain and instruct visiting physicians and dentists from the South American countries.

Dr. Robert S. Jason, Dean of Howard University College of Medicine, has been appointed to the National Advisory Council on Education for Health Professions. The Council will advise Surgeon General Luther L. Terry, of the Public Health Service, on the administration of grants for the construction of new teaching facilities and the replacement or rehabilitation of existing facilities in schools of medicine, dentistry, nursing, pharmacy, etc. Dr. Jason will be one of the representatives of medical education on the Council.

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88TH YEAR HAHN

At the annual meeting of the Board of Trustees of the Washington Hospital Center, February 27, **Dr. Theodore J. Abernethy and Dr. Henry D. Ecker** were elected new members to serve for 3 years. Among those reëlected to the Board for 3 years were **Dr. Worth B. Daniels and Dr. Benjamin Rones.**

Dr. Orhan H. Aydinel, an Associate member of the D. C. Medical Society, has been elected a Fellow of the American College of Obstetricians and Gynecologists.

Dr. James D. Brew, Jr., of the Yater Clinic, returned, February 18, from Saigon in Viet Nam, where he had spent a month with MEDICO as "global gynecologist."

Dr. Oscar B. Hunter, Jr., has been elected to the Board of Directors of the Bank of Commerce.

Dr. Edward C. Mazique will be one of the members of the Board of Directors of the new United Community National Bank, recently approved by the Controller of Currency, which is to be located at the intersection of Benning Road and Minnesota Avenue, N.E.

Obituaries

Richard Maurice Rosenberg, B.S., M.D.
(1895–1964)

Dr. Richard M. Rosenberg, who retired in 1961 as District Deputy Coroner, died, January 12, 1964, in Miami, Fla.

Dr. Rosenberg was born, July 11, 1895, in Nyack, New York, to Harry and Sarah Kane Rosenberg. After attending schools in Nyack, he enrolled at Fordham University. His studies there were interrupted by World War I. He enlisted in the Medical Corps of the Army and was stationed at Camp Dix from 1917 to 1919.

After the War Dr. Rosenberg continued his medical studies at Georgetown University, receiving his Bachelor of Science degree in 1924 and his medical degree in 1926. He interned at Georgetown University Hospital. He also taught physiology at Georgetown from 1927 to 1933.

Interest in crime detection motivated Dr. Rosenberg to apply for the position of Deputy District Coroner in 1934, and he held this position until he retired in May, 1961. His great success in solving criminal cases through keen observation and painstaking laboratory work won him the title of "crime doctor" in the Washington area. In 1952 Police Chief Robert V. Murray presented him with a Certificate of Commendation for his help in solving a difficult assault and robbery case.

Dr. Rosenberg was an Active member of the Medical Society of the District of Columbia from 1941 until 1962.

He lived with his wife, Emily P. Rosenberg, who survives him, in Manassas, Va.

Venereal Disease—Grant

(*Continued from page 171*)

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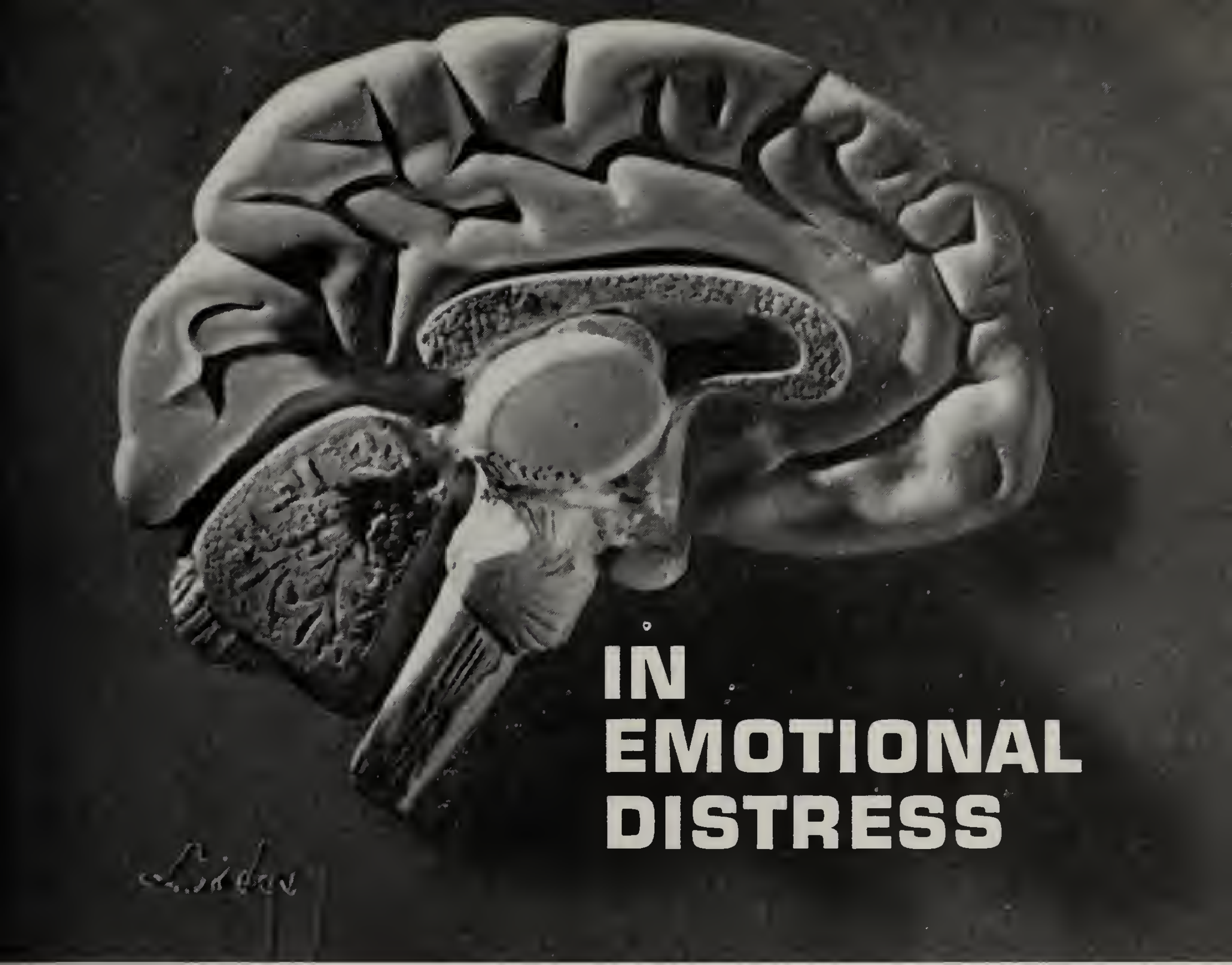

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BOOK REVIEWS

Atlas of Bone Tumors, including tumorlike lesions. W. S. GILMER, JR., M.D., F.C.A.P., G. B. HIGLEY, JR., M.D., AND W. E. KILGORE, M.D. Price, $27.50. Pp. 165, with 311 figures, including 190 in color. St. Louis: Mosby, 1963.

This, as the title indicates, is a book of pictures. However, there is a brief but sufficient description of each bone lesion presented. Only the more common bone lesions, such as giant cell tumors, bone cysts, and osteogenic sarcomas, are included. Dental lesions and rare tumors of bone, such as hemangiopericytomas, are not included. This does not detract from the Atlas because these other conditions are adequately detailed in other texts.

In addition to a brief description there are adequate roentgenograms and color photos of gross and microscopic sections.

This Atlas will be useful to orthopedic surgeons and pathologists interested in bone lesions. The price for a text of 165 pages seems high, but the large number of excellent color photographs warrants it.

VERNON E. MARTENS, M.D.

Anesthesia for Surgery of the Heart, 2nd ed KENNETH K. KEOWN, M.D., F.A.C.A. With chapters by EMERSON A. MOFFITT, M.D., RICHARD A. THEYE, M.D., THEODORE E. KEATS, M.D., AND JACK M. MARTT, M.D. Price, $7.75. Pp. 206, illustrated. Springfield, Ill.: Thomas, 1963.

In this textbook the author has covered in 200 pages the points which are important in the management of patients undergoing anesthesia for cardiovascular surgery. Because of the importance the author places on a thorough knowledge by the anesthetist of the preparation of patients for cardiovascular surgery, he has included in his text chapters on cardiac catheterization and the radiologic diagnosis of heart disease by eminent authorities on these subjects.

The book illustrates that a knowledge of all of these special subdivisions are necessary for the management of the anesthetic. It is, therefore, emphasised in the book that only coöperation between all individuals will result in good management of cardiovascular cases. He stresses that the anesthetist's participation in the early preparation of the patient for surgery will be in the patient's best interest. It is not believed in all centers that the anesthetist should play such an important part in the early management of this condition, but the author has shown by his own knowledge of the related internal medicine that with such a background the anesthetist can and should contribute more to the management of the case.

This book should be read by all junior staff members involved in handling of cardiovascular surgery.

THOMAS E. MACNAMARA, M.B., CH.B.

Alcohol and Civilization. Edited by SALVATORE PABLO LUCIA, M.D., Sc.D. Price (paper), $3.95. Pp. 416. New York: McGraw-Hill, 1963.

The present volume is a collection of papers and several panel discussions presented at a symposium, presumably under the same name, presumably taking place in San Francisco, presumably in 1961 (neither the preface nor introduction tells us, and we are left to infer this from some of the papers). The title is somewhat misleading, since the "... and Civilization" type of book is generally a historical study. This book is for the most part a study of the place, use and abuse of alcohol in contemporary civilization, with occasional references, however, in several of the papers to its role in past history. One or 2 papers are specifically concerned with the historical background.

This is a most useful book. It presents in very readable form and language a fairly complete survey of contemporary thinking with regard to the problems of alcohol. There are detailed, yet by no means statistically or technically boring, reports on research on the physiologic and psychologic effects of alcohol in test situations and in clinical observation. There are papers on the social role of alcohol, an excellent paper by a New York City Judge on legal considerations of intoxication, and, needless to say, studies addressed to the psychiatric problems involving alcohol.

Several aspects of this volume merit special commendation. It is happily free of conventional ideas and clichés about the use of alcohol. Nowhere is there preaching or moralizing against its use. On the contrary, there is much said about and for the healthful, desirable and "ebriate" use of alcohol. Particularly delightful and instructive in this regard is the paper by Dr. William Dock on the clinical value of alcohol.

Noteworthy, too, is the constant reference to, and frequently the stress upon, the need for further research on the use of alcohol. Although much has been learned from careful study on the metabolism, psychologic and social effects of alcohol, there is explicit or implied unanimity among all the participants that only with continued careful research can the role of alcohol in our civilization be fully evaluated.

Each of the chapters in the book is prefaced with a summary, which is either a brief editorial note or quotations from the material to follow.

The several chapters covering panel discussions are the weakest section of the book. They add little that has not already been discussed elsewhere, and at times remarks "from the floor" tend to be argumentative and repetitive.

All in all, this is a highly readable, literate, scientific and sober (no pun intended) approach from a variety of viewpoints to problems in the use of alcohol in our civilization. If it offers no additional information to the specialist in problems of alcohol and alcoholism, for any civilized person it will be a delightful and instructive reading experience.

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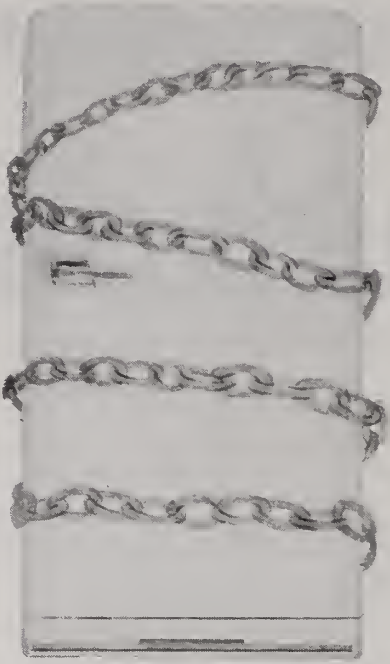

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BOOKS RECEIVED

Acknowledgment is made of the following books which have recently been received.

Surgical Pathology, 3rd ed. LAUREN V. ACKERMAN, M.D., in collaboration with HARVEY R. BUTCHER, JR., M.D. Price, $18.75. Pp. 1244, with 1216 illustrations. St. Louis: Mosby, 1964.

Appraisal of Current Concepts in Anesthesiology, volume 2. Edited by JOHN ADRIANI, M.D. Price, $10.75. Pp. 478. St. Louis: Mosby, 1964.

Infectious Diseases of the Conjunctiva and Cornea. Symposium of the New Orleans Academy of Ophthalmology. HENRY F. ALLEN, M.D., ROBERT P. BURNS, M.D., WENDELL D. GINGRICH, M.D., ISADORE GIVNER, M.D., SAMUEL N. KEY, JR., M.D., SAMUEL J. KIMURA, M.D., AND PHILLIPS THYGESON, M.D. Price, $12.50. Pp. 230, illustrated. St. Louis: Mosby, 1963.

Current Diagnosis and Treatment. HENRY BRAINERD, M.D., SHELDON MARGEN, M.D., MILTON J. CHATTON, M.D., and Associate Authors. Price (paper), $9.50. Pp. 870. Los Altos: Lange, 1964.

Fundamental Marriage Counseling—A Catholic Viewpoint. JOHN R. CAVANAGH, M.D. Price, $8.00. Pp. 680. Milwaukee: Bruce, 1963.

Campbell's Operative Orthopaedics, 4th ed., volumes 1 and 2. A. H. CRENSHAW, M.D., Editor; LEE MILFORD, M.D., (chapter on hand surgery), and 17 other contributors. Price, $57.50, 2 vol. Pp. 1916, with 1535 illustrations, including 9 in color. St. Louis: Mosby, 1963.

Pediatric Therapy. HARRY C. SHIRKEY, B.S. (Pharm.), M.D., F.A.A.P., Editor, with 72 contributors. Price, $16.50. Pp. 1144, with 343 illustrations. St. Louis: Mosby, 1964.

Anesthesia for Infants and Children, 2nd ed. ROBERT M. SMITH, M.D. Price, $13.50. Pp. 470, with 191 illustrations. St. Louis: Mosby, 1963.

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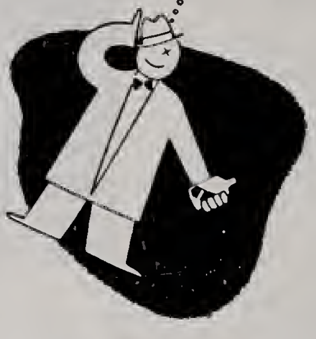

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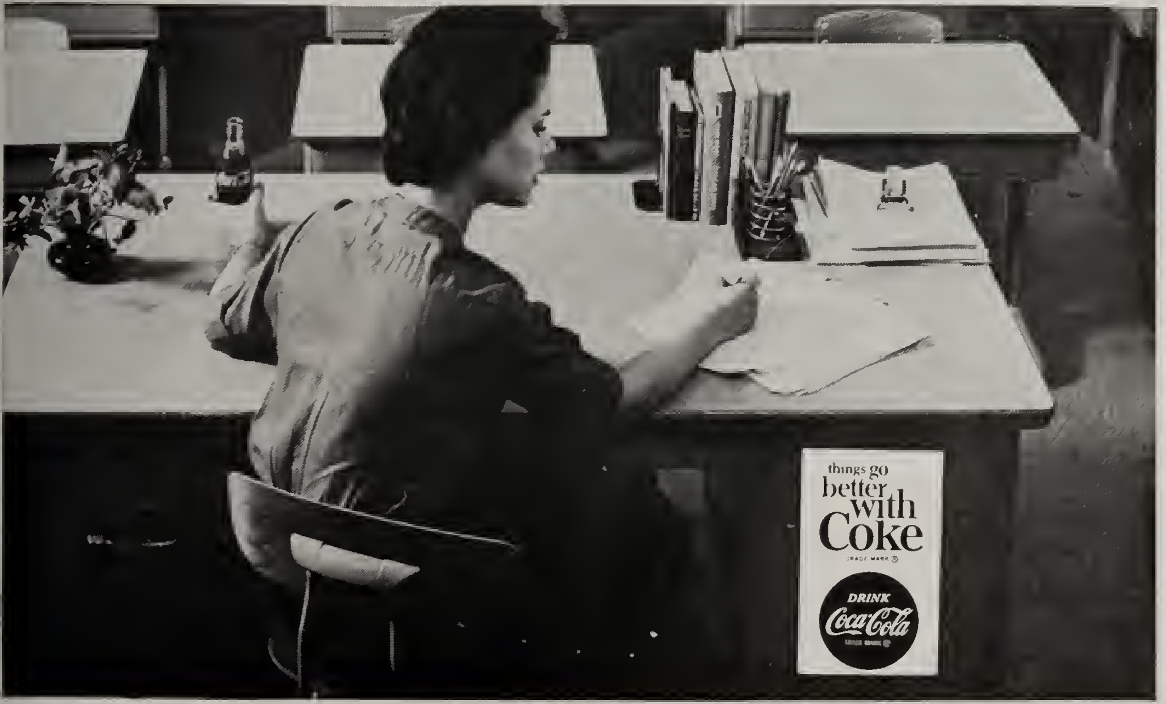

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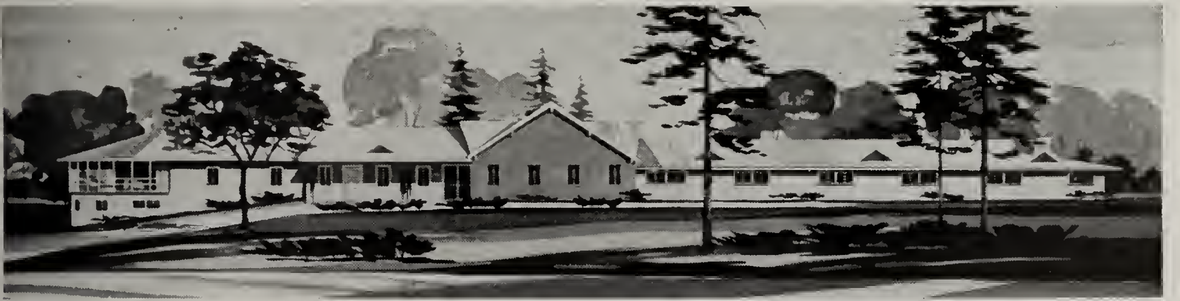

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May 3–7: American Society for Microbiology. Sheraton Park and Shoreham Hotels, Washington, D. C. Address: Mr. R. W. Sarber, Executive Secretary, 115 Huron View Blvd., Ann Arbor, Mich.

May 6–8: Medical and Chirurgical Faculty of the State of Maryland. Alcazar Hotel, Baltimore. Address: Mr. John Sargeant, *Executive Secretary*, 1211 Cathedral Street, Baltimore, Md. 21233

May 10–14: American Proctologic Society and Proctologic Section of the Royal Society of Medicine. Bellevue-Stratford Hotel, Philadelphia. Address: Dr. Norman D. Nigro, *Secretary*, 320 West Lafayette, Detroit 26, Mich.

May 11–14: Aerospace Medical Association. Americana Hotel, Bal Harbour, Fla. Address: Dr. William J. Kennard, *Secretary*, Washington National Airport, Washington 1, D. C.

May 11–15: American College of Physicians: Postgraduate Course No. 15. Clinical Auscultation of the Heart. Georgetown University Hospital, Washington. W. Proctor Harvey, M.D., Director. Address: Dr. Edward C. Rosenow, Jr., Executive Director, ACP, 4200 Pine Street, Philadelphia, Pa. 19104

May 17–22: American College of Obstetricians and Gynecologists. Americana Hotel, Bal Harbour, Fla. Address: Mr. Donald F. Richardson, *Executive Director*, 79 West Monroe Street, Chicago 3, Ill.

May 25–27: American Gynecological Society. The Homestead, Hot Springs, Va. Address: Dr. C. J. Lund, *Secretary*, 260 Crittenden Blvd., Rochester 20, N. Y.

May 25–27: American Thoracic Society. Statler Hotel, New York City. Address: Mr. Frank W. Webster, *Executive Secretary*, 1790 Broadway, New York 19, N. Y.

May 28–30: American Ophthalmological Society. The Homestead, Hot Springs, Va. Address: Dr. Joseph A. C. Wadsworth, *Secretary*, 108 East 68th Street, New York 21 N. Y.

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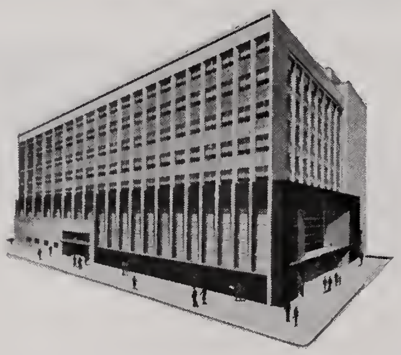

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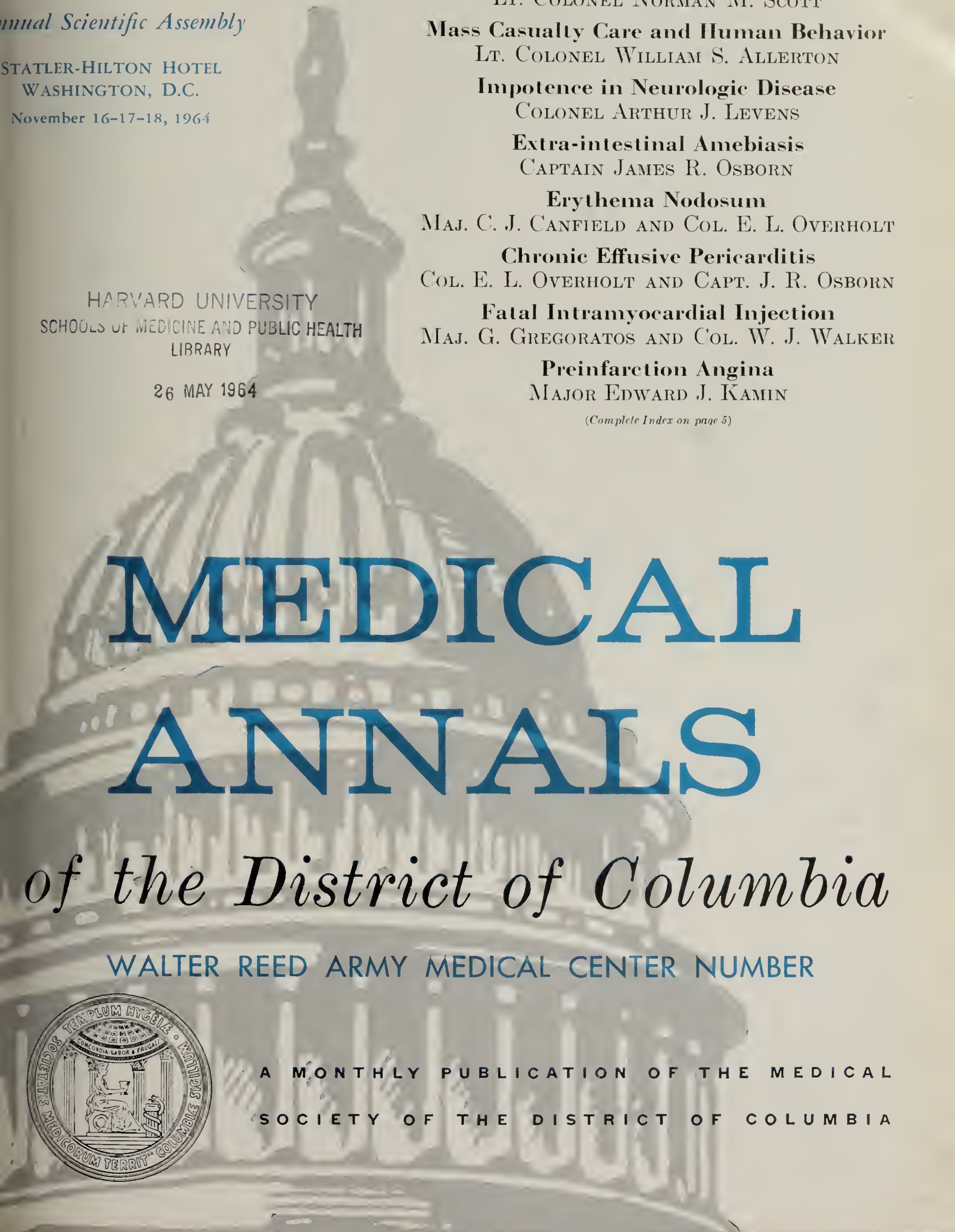

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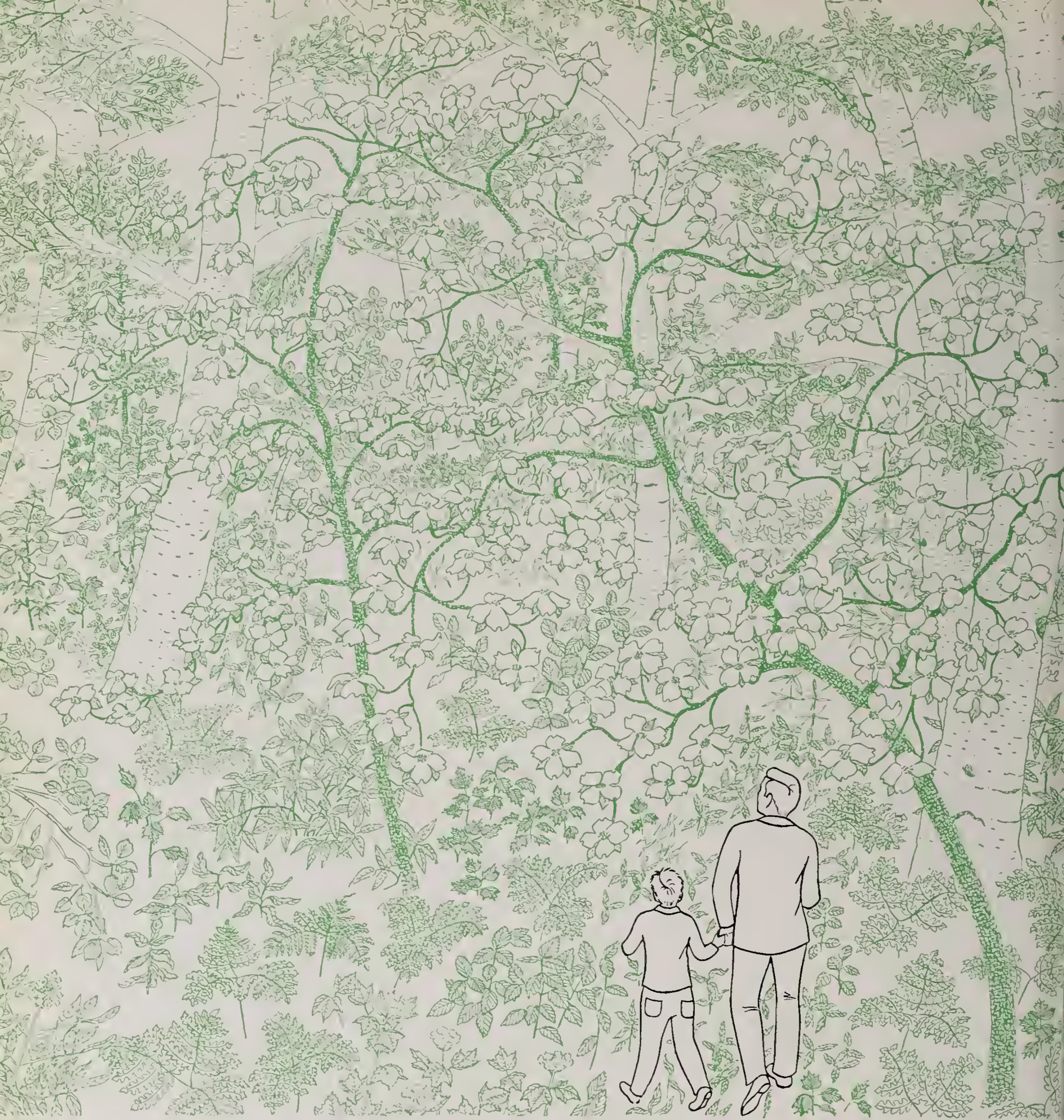

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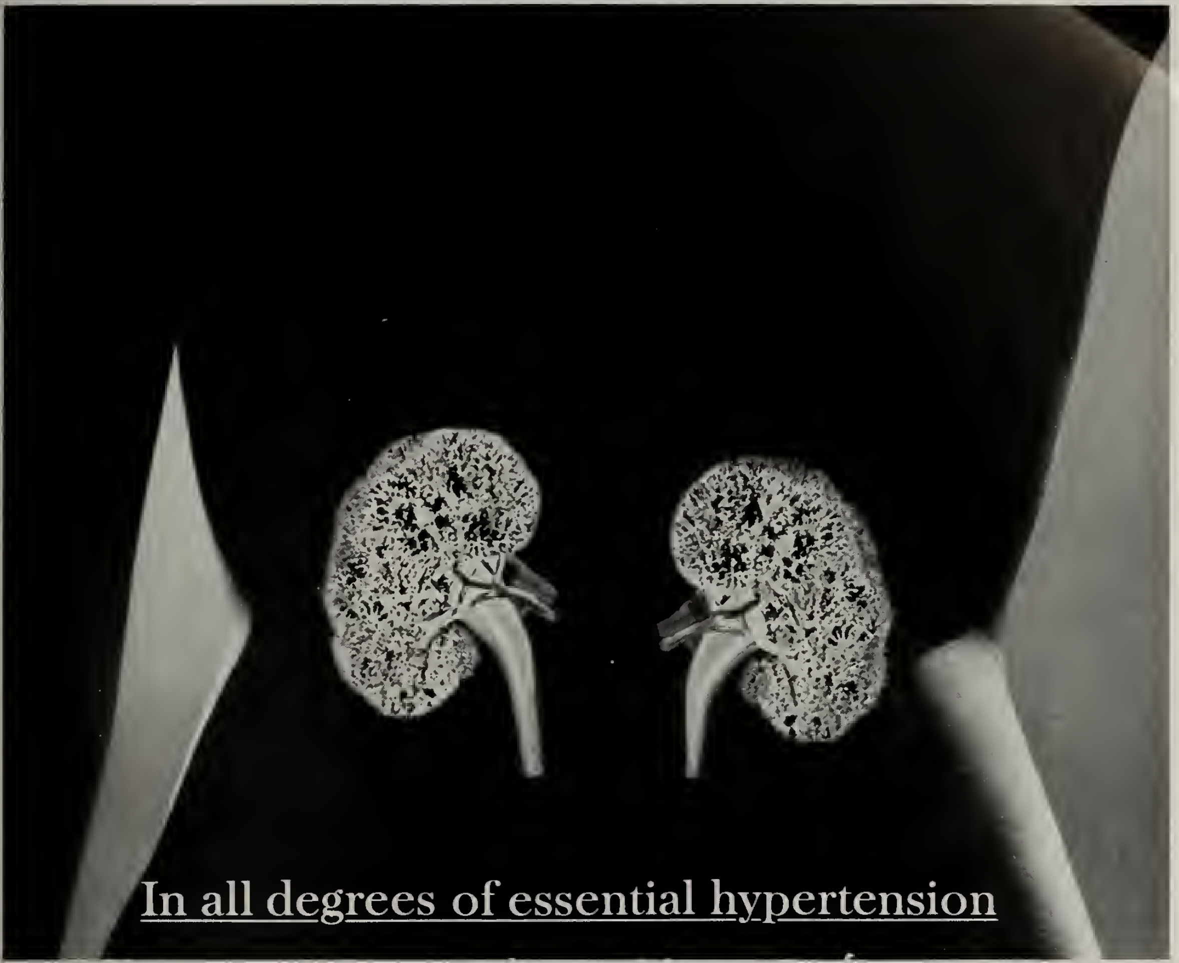
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References: (1) Moyer, J. H., and Heider, C.: Am. J. Cardiol. *9*:920 (June) 1962. (2) Brest, A. N., and Moyer, J. H.: Pennsylvania M. J. *63*:545 (Apr.) 1960. (3) Berry, R. L., and Bray, H. P.: J. Am. Geriatrics Soc. *10*:516 (June) 1962. (4) Hutchison, J. C.: Current Therap. Res. *4*:610 (Dec.) 1962. (5) Feldman, L. H.: North Carolina M. J.: *23*:248 (June) 1962.

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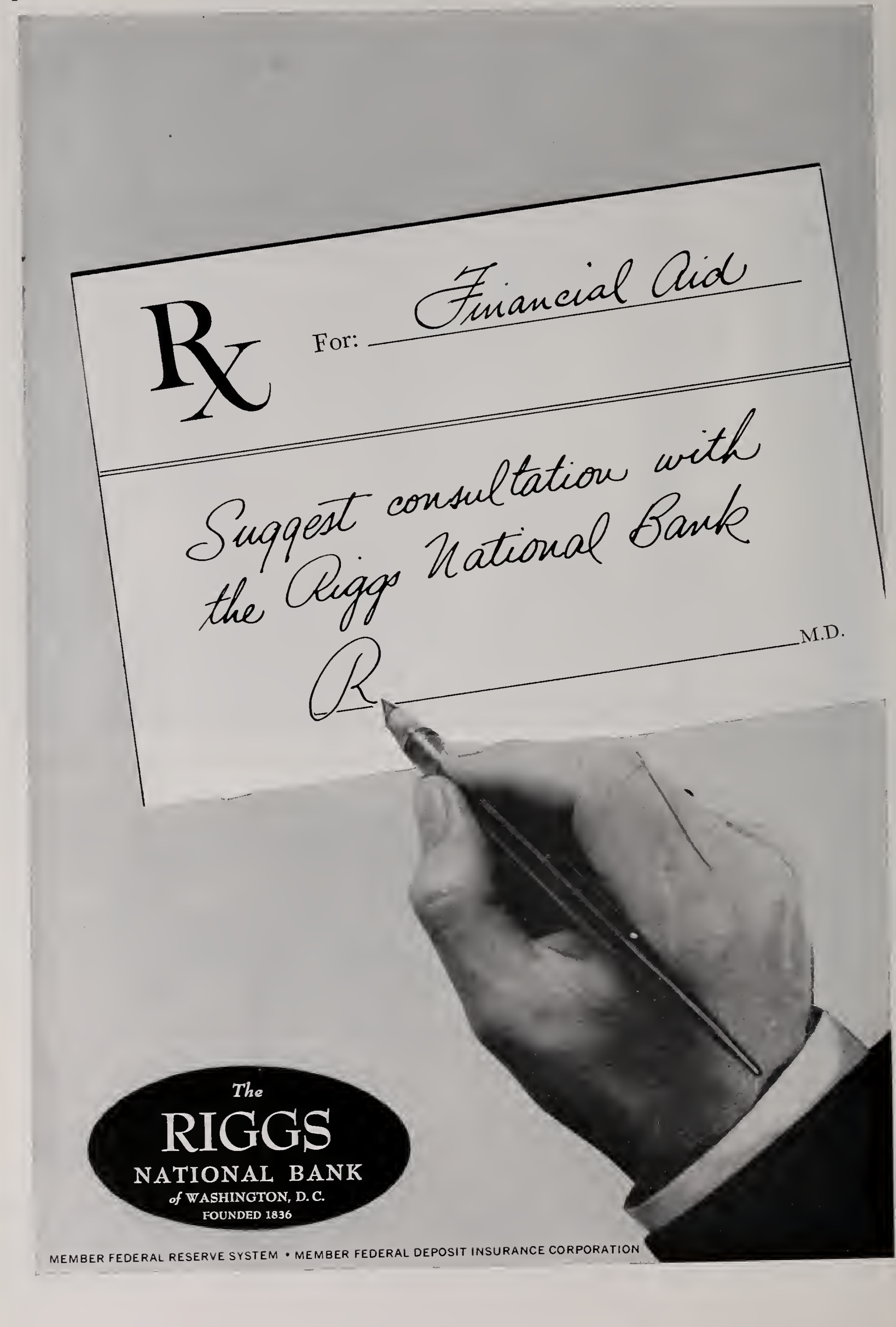
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Yearly Subscription, $4.50
Single Number, 50¢

Second-class postage paid at Baltimore, Md.
Published monthly at
Mount Royal and Guilford Avenues,
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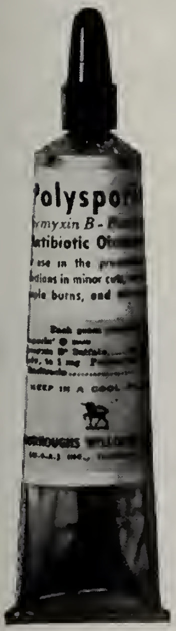

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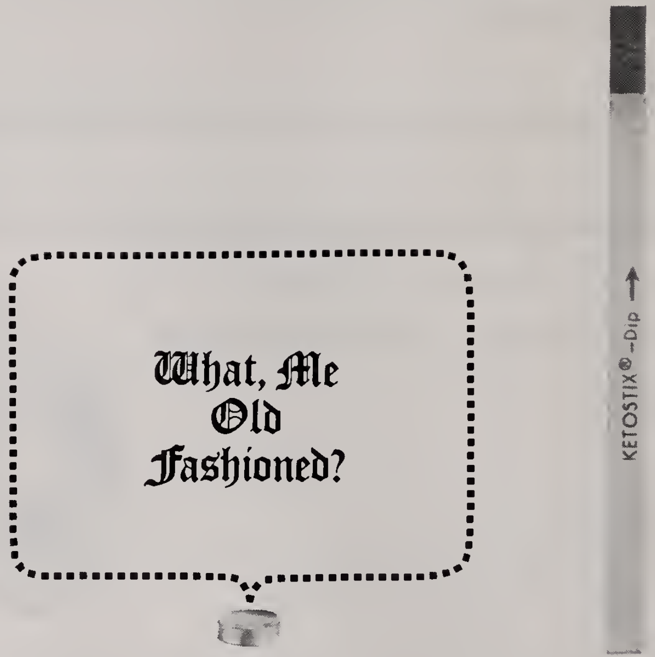

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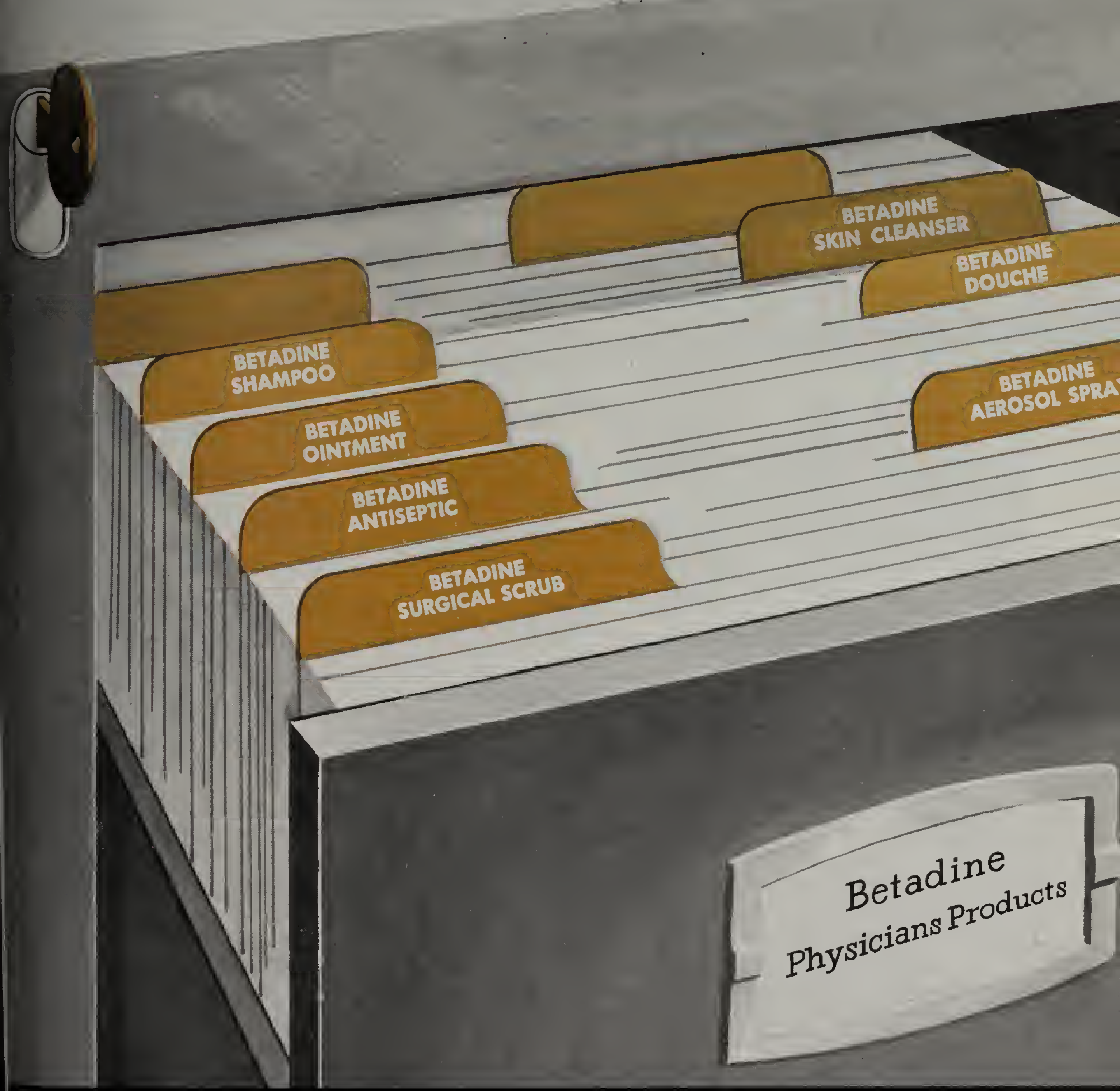
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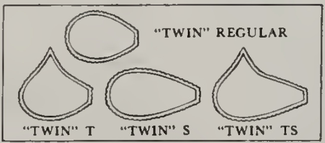

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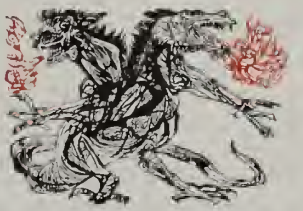

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BOOKS RECEIVED

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Gastroenterology, Volume II, 2nd ed. Henry L. Bockus, M.D. Price, $28.00. Pp. 1241, illustrated. Philadelphia: Saunders, 1964.

Current Therapy 1964. Latest Approved Methods of Treatment for the Practicing Physician. Edited by Howard F. Conn, M.D. Price, $13.00. Pp. 797. Philadelphia: Saunders, 1964.

Diseases of the Heart and Blood Vessels: Nomenclature and Criteria for Diagnosis, 6th ed. By The Criteria Committee of the New York Heart Association: Charles E. Kossmann, M.D., *Chairman*; Herbert Chasis, M.D., Charles A. R. Connor, M.D., Clarence E. de la Chapelle, M.D., William T. Foley, M.D., Rejane M. Harvey, M.D., Edwin P. Maynard, Jr., M.D., and John B. Schwedel, M.D. Price, $5.50. Pp. 463, with 33 illustrations. Boston: Little, 1964.

Current Pediatric Therapy. Sydney S. Gellis, M.D., and Benjamin M. Kagan, M.D. Price, $16.00. Pp. 747. Philadelphia: Saunders, 1964.

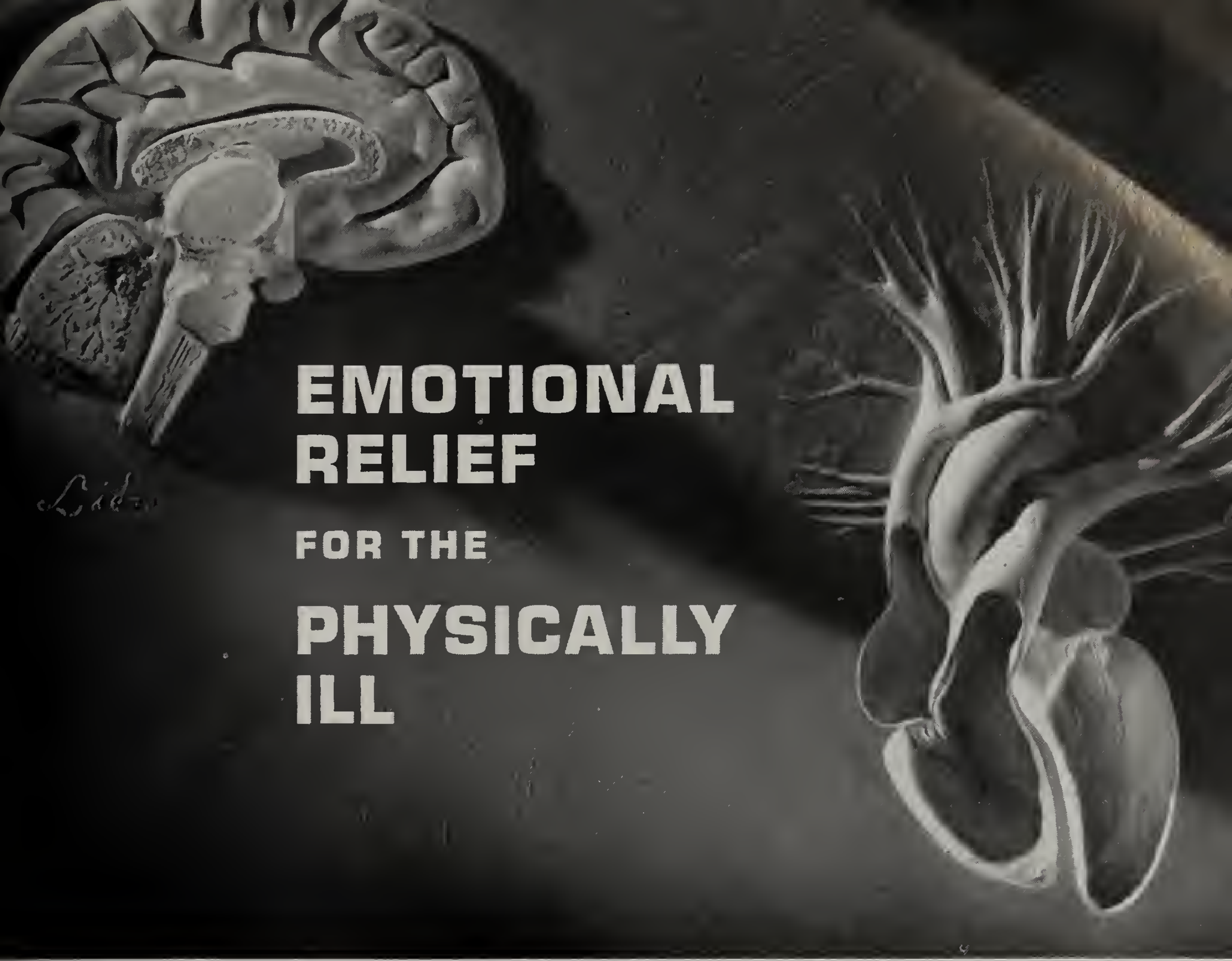
Medical Pharmacology—Principles and Concepts, 2nd ed. Andres Goth, M.D. Price, $11.75. Pp. 585, illustrated. St. Louis: Mosby, 1964.

Principles of Public Health Administration, 4th ed. John J. Hanlon, M.S., M.D., M.P.H. Price, $11.50. Pp. 719, illustrated. St. Louis: Mosby, 1964.

Drugs of Choice 1964–1965. Walter Modell, M.D., Editor. Price, $16.75. Pp. 1018. St. Louis: Mosby, 1964.

Handbook of Legal Medicine, 2nd ed. Alan R. Moritz, M.D., and C. Joseph Stetler, LL.B., LL.M. Price, $5.75. Pp. 239. St. Louis: Mosby, 1964.

Case Studies in Obstetrics and Gynecology. F. Jackson Stoddard, M.D. Price, $8.50. Pp. 312, illustrated. Philadelphia: Saunders, 1964.



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BOOK REVIEWS

Appraisal of Current Concepts in Anesthesiology, volume 2. Edited by John Adriani, M.D. Price, $10.75. Pp. 478. St. Louis: Mosby, 1964.

This book is entirely a summary of current articles on anesthesiology and allied subjects appearing in journals during the past few years, especially during the years 1961–1963.

Just as the first edition in 1961, this book is an excellent time-saver for the clinician who does not have the time to read all the articles in their entirety. The summaries contain not only the essence of current thinking and research but they also summarize early ideas on the various subjects.

Without exception, my colleagues who have read this book find it a very excellent reference book on current literature; however, it should be acknowledged, as Dr. Adriani stated, "This is not exhaustive and not directed toward research workers or to be considered as a textbook on anesthesiology." Much of the material will no doubt be incorporated in textbooks of the future.

Since this review was compiled, many new articles have appeared in current journals, so that this series of appraisals is not new, yet newer than accepted textbooks. Therefore, this Volume 2 is a bridge between the old and the new.

The editor is to be commended for this excellent project.

Fred S. Grunwald, M.D.

Infectious Diseases of the Conjunctiva and Cornea. Symposium of the New Orleans Academy of Ophthalmology. Henry F. Allen, M.D., Robert P. Burns, M.D., Wendell D. Gingrich, M.D., Isadore Givner, M.D., Samuel N. Key, Jr., M.D., Samuel J. Kimura, M.D., and Phillips Thygeson, M.D. Price, $12.50. Pp. 230, illustrated. St. Louis: Mosby, 1963.

Seven distinguished ophthalmologists in the field of infectious diseases of the eye have very thoroughly covered a wide range of topics related to diseases of the conjunctiva and cornea. These discussions embrace both diagnostic and statistical information on laboratory and clinical characteristics of a number of specific bacterial, fungous and viral infections. Both the natural history of the diseases and the recommended therapeutic approach are amply covered.

Emphasis is placed on the considerable information which can be obtained from simple bacteriologic examinations when done as an office procedure. Conjunctival and corneal scrapings stained with the Gram and Giemsa technique require only a few minutes' time. Culture material, especially blood agar plates, can be obtained by mail already prepared and require only a small incubator.

Particularly valuable are the discussions on the management of pre- and postoperative infections and instrument sterilization procedures. There was general agreement on the desirability of avoiding topical antibiotic-steroid combinations except in a few specific conditions such as marginal ulcer or associated iritis. The comments devoted to the role of IDU in herpetic keratitis, unfortunately, do not reflect the large body of information accumulated since this symposium took place. This minor deficit certainly does not detract from the overall excellent coverage of this subject.

This book will prove of great value to the ophthalmologist in his daily practice and in resident teaching.

Howard N. Bernstein, M.D.

Medical Department, United States Army: Organization and Administration in World War II by Blanche B. Armfield, M.A.; Colonel John Boyd Coates, Jr., M.C., Editor-in-Chief; Charles M. Wiltse, Ph.D., Litt. D., Editor for Organization and Administration. Prepared and published under the direction of Lieutenant General Leonard D. Heaton, The Surgeon General, United States Army. Price, $6.25. Pp. 613, with 123 illustrations. Washington 25, D. C.: Superintendent of Documents, U. S. Government Printing Office, 1963.

I thought that reviewing the book "Organization and Administration in World War II" of the Medical Department, United States Army, would be monotonous, dreary reading. I was pleasantly surprised. The text is brisk, the continuity excellent, and the problems encountered are clearly presented and truly understandable. The temporary solutions, in retrospect, make sense, although to those of us who served then the answers were far from satisfactory.

For a 1939 medical service intended for 200,000 men to mushroom, expand, and to do a magnificent administration and medical job for some 8,000,000 persons is indeed (Hollywood notwithstanding) stupendous, colossal, and gigantic! We must not forget that our men and women served on a war footing in every terrain and climate and on every continent.

It is a wonder that there were so few "snafus" in organization and administration; there could have been many more. The underlying theme of this book is the relationship of the Surgeon to the Commander from the Surgeon General down to the Battalion Surgeon. It is stressed, and rightly so, that there must be complete and direct rapport between the Commander and the Surgeon without transmission to an intermediary, whether it be G4, G3, or S3, Service of Supply or other department or agency.

Administration, logistics, mobility, sanitation, medical supplies, etc., should be handled by the Surgeon of the force with its objectives and capabilities controlled by the Commander through the Surgeon.

The book also recounts the difficulties of supply and command with the then Air Corps of the Army, its specific duties and staff functions, and special situations which were not easily covered by higher directives or by the Air Corps itself.

Not the least interesting portions of the book are the

(Continued on page 20)

Outwardly calm...but what goes on inside?

Appearances on the outside do not necessarily suggest what goes on inside. This is particularly true of the ulcer patient, who may appear jolly and unruffled to his neighbors, but presents to you the classic symptoms: organic and functional disorders of the G.I. tract, associated with anxiety and tension.

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Book Reviews

(*Continued from page 18*)

short summaries of the situations handled by the various medical officers, their photographs and short histories. Many are known personally to former medical officers and particularly to Washington physicans who served during World War II and afterwards.

Eugene G. Lipow, M.D.

Proceedings, Conference of Professional and Scientific Societies—Chicago—June 27–28, 1963. Price $5.50. Pp. 179. Sponsored by Commission on Drug Safety, 221 North LaSalle Street, Chicago 1, Illinois.

The Commission on Drug Safety was established in August, 1962, with a grant from the Pharmaceutical Manufacturers Association. The Commission conceived and planned the Conference and this volume presents the substance of the discussions held by the 201 delegates, representing Government, industry, and academic medicine, as well as some professional and scientific organizations. The Commission is one of the by-products of the Thalidomide tragedy and its deliberations may be of interest to those whose work revolves about the investigation of the safety and effectiveness of drugs. It is, in essence, a document reflecting a desire by the delegates for an enlightened governmental interpretation of the Drug Amendments of 1962 and must be viewed in the larger perspective of the experience since the Conference.

Fears were expressed that the new regulations would interfere with the scientific process, that the leadership of professionals in investigative medicine might be removed, that the new regulations would impede the flow of new agents, that consent would bring complex legal problems. Time, reflection, experience with the regulations, and a rational governmental interpretation of the regulations, while they have not resolved all issues, tend to make this Conference one of almost historic interest. Not all of the problems raised dealt with the Government; some dealt with the larger, unsolved problems of the adequacy of present-day drug research. For this reason, this book will remain of some value.

Matthew J. Ellenhorn, M.D.

Mental Mechanisms. Henry P. Laughlin, M.D. Price, $7.50. Pp. 262. Washington, D. C.: Butterworth, 1963.

The author, a practicing psychiatrist with a long teaching experience, presents here in simple language a consideration of some of the common mental mechanisms. The volume is designed primarily for medical students, residents, and candidates for the examinations of the American Board of Psychiatry and Neurology. There are many brief illustrative case examples, as would be expected in a book of this sort.

The major mechanisms discussed are: Repression, Sublimation, Identification, Inversion, Compensation, and Restitution. Dr. Laughlin points out, however, that although for purposes of description these mechanisms are separately classified they rarely are found in pure culture. Furthermore, he emphasizes a fact that the use of terms such as "mechanism" and "dynamism" may readily obscure in the readers' mind that "they are utilized by everyone, and that they are employed automatically and outside of conscious awareness" (page 7). Furthermore, these mechanisms have as their object the avoidance of psychic discomfort and pain; they may, however, hypertrophy or fail, in which case pathology develops, just as when scar tissue, a reparative process, hypertrophies and becomes keloid.

The names of these mechanisms, in their Freudian sense, have become so much a part of our everyday speech that the interest of this book is not confined to the psychiatrist. The definitions and examples give to even the casual reader a guide to the true meaning of the words.

Winfred Overholser, M.D.

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Anesthesia for Infants and Children, 2nd ed. Robert M. Smith, M.D. Price, $13.50. Pp. 470, with 191 illustrations. St. Louis: Mosby, 1963.

The original volume is an excellent compilation of the pertinent information pertaining to the successful administration of anesthetics for infants and children. It assumes the reader is familiar with the principles of general basic anesthesia but lacks complete and thorough knowledge of the problems inherent in pediatric anesthesia. The book also provides a complete list of references for a broader interpretation and understanding of the entire subject.

The author in his new edition has made very little change in the format of his book. The chapters coincide in character and number with the original text of 4 years ago.

Additions to the chapter, Respiratory Physiology, are excellent; e.g., surface tension and lung function, measurement of pulmonary function in children, etc., broaden the basic science knowledge content of the book but are not vital to the purpose of the thesis.

The strong appeal for simplicity in the monitoring and anesthetic equipment for use on infants and small children is correct and commendable.

This new edition is superbly presented but, in the opinion of the reviewer, doesn't make the original text obsolete.

Charles E. Fierst, M.D.

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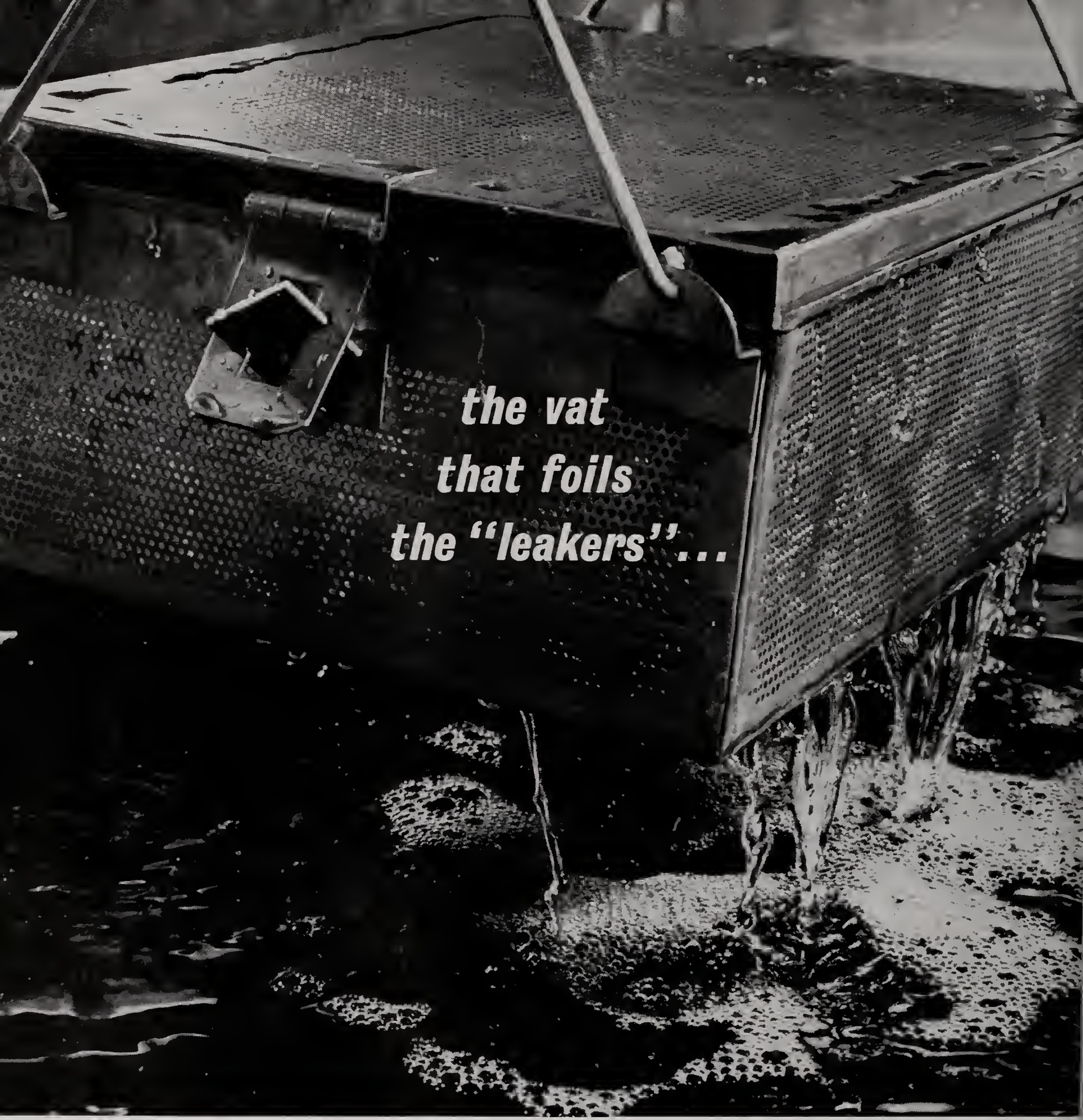

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MEDICAL ANNALS

of the District of Columbia

May 1964

VOLUME XXXIII • NUMBER 5

Walter Reed Army Medical Center Number

THIS IS THE FIFTH of a third series of special numbers of the MEDICAL ANNALS, the scientific material for which is supplied by medical institutions and scientific organizations in the Washington Metropolitan Area. For the WALTER REED ARMY MEDICAL CENTER NUMBER the Editorial Board is indebted to Colonel Edwin L. Overholt, M.C., U.S.A., Consulting Editor of the MEDICAL ANNALS, who secured the papers which appear in this issue.

Drug-induced Thrombocytopenia

COLONEL WILLIAM H. CROSBY, M.C., U.S.A.

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ADVERSE REACTIONS TO A DRUG may be far more serious than the condition for which the drug is prescribed. A prime example is drug-induced thrombocytopenia, which may provoke severe bleeding or even death from brain hemorrhage.[1, 2] The normal platelet count ranges from 200,000 to 400,000 per cu. mm. Thrombocytopenia is present when the platelet count falls below these levels, but a significant bleeding tendency is usually not encountered in otherwise healthy persons unless the platelet count is less than 20,000. Below this level the signs of thrombocytopenic purpura begin to appear.

Drugs may induce thrombocytopenia in 1 of 2 ways—by impairing the production of platelets in the bone marrow or by prematurely destroying the platelets in the blood.

Decreased platelet production. Injury of the bone marrow is the more frequent cause of drug-induced thrombocytopenia. Usually the platelet depression is associated with a generalized bone-marrow hypoplasia or aplasia so that anemia and leukopenia are also present. Unless the drug is an intentional marrow poison, such as nitrogen mustard or the antimetabolites, the development of aplasia represents a drug idiosyncrasy, occurring only in a few of the exposed patients. The mechanism of marrow destruction is not known. Bone-marrow examinations in these cases reveal few, if any, megakaryocytes, decreased numbers of erythroid and myeloid elements, and an increased amount of fat. Commonly used drugs in this category include chloramphenicol, meprobamate, and Pyribenzamine® (table 1).

Increased platelet destruction. In a previously sensitized person the onset of thrombocytopenia upon reëxposure to the drug may be fulminant. Allergic manifestations, such as urticaria, asthma, skin rash, rhinitis, chills and fever, may develop. Evidence indicates that the nature of the involved mechanism is immunologic. Antibodies are formed which are capable of reacting in a drug-platelet-antibody complex. Subsequent use of the drug results in damage and removal of the platelets from the circulation. The mechanisms involved have been recently illuminated by the work of N. R. Schulman[3] of the National Institute of Arthritis and Metabolic Diseases, Bethesda, Maryland. Quinidine and Sedormid®, as well as chlorthiazide, streptomycin, acetazolamide and sulfisoxazole, are among the more important sensitizing drugs (table 1). At least 1 drug, the antibiotic ristocetin, has been shown to be directly toxic to platelets. This appears to be a dose-related phenomenon, so that by merely reducing the dose of the drug thrombocytopenia may be ameliorated.[4]

TABLE 1: Available Drugs Shown by Direct or Circumstantial Evidence to Cause Drug-induced Thrombocytopenia*

Drug Type	Induces Thrombocytopenia by Depressing Platelet Production	Induces Thrombocytopenia by Increasing Platelet Destruction
Chemotherapeutic and antibiotic agents	Chloramphenicol, streptomycin, quinacrine, sulfamethoxypyridazine, arsphenamine, pyramethamine	Quinine, sulfamethoxypyridazine, sulfisoxazole, ristocetin, arsphenamine
Anticonvulsants	Methylphenylethyl hydantoin, trimethadione	
Tranquilizers	Meprobamate, mepazine	Meprobamate
Antihistaminic drug	Tripelennamine	
Diuretics		Acetazolamide, chlorothiazide
Antithyroid drug	Potassium perchlorate	
Hypoglycemic agents	Carbutamide, chlorpropamide, tolbutamide	Chlorpropamide
Cardiac drug		Quinidine
Heavy metals	Gold salts	Gold salts
Analgesic drug	Phenylbutazone	Phenylbutazone
Anti-arthritic drug	Colchicine	

* For a complete list of suspected drugs the reader is referred to the semiannual tabulation of reports of the Study Group on Blood Dyscrasias, AMA Council on Drugs.

The care of a patient with suspected drug-induced thrombocytopenia. Several diagnostic and therapeutic considerations are involved in the drug-associated thrombocytopenias:

1. A careful history is important to help differentiate the drug-induced purpura from idiopathic thrombocytopenic purpura (ITP) and postinfectious thrombocytopenia.

2. When a patient develops purpura a platelet count (or estimate from a stained blood smear) indicates whether thrombocytopenia is present.

3. Examination of the marrow should be done promptly to differentiate between increased platelet destruction (abundance of megakaryocytes) and decreased platelet production (paucity of megakaryocytes). With a lack of megakaryocytes there is often a similar lack of other marrow constituents together with a corresponding pancytopenia instead of simple thrombocytopenia.

The condition of the marrow is prognostically important because, while the thrombocytopenia induced by increased platelet destruction is quickly cured by withdrawing the responsible drug, an aplastic reaction is often irreversible.

4. If a drug is suspected of causing the thrombocytopenia, unless there is an indication for its use more serious than the thrombocytopenia, the drug should be stopped while the question of its culpability is studied.

5. Is the thrombocytopenia a result of the drug or something else? This is an important point to establish. A patient taking quinidine may develop idiopathic thrombocytopenic purpura. If he needs the quinidine it should not be unnecessarily restricted.

6. Treatment which may obscure the etiology of the thrombocytopenia should not begin until a careful estimate of the situation is made. For example, quinidine purpura recovers rapidly and completely when the drug is stopped. ITP often recovers rapidly and completely when corticosteroids are used. In a case of suspected quinidine purpura one might be ill advised to stop the quinidine and start corticosteroids simultaneously.

7. Tests for inhibition of clot retraction in the presence of the suspected drug may be helpful in differentiating this from other causes of thrombocytopenia.[5]

8. Other causes of purpura should be carefully considered. Drugs may cause vascular purpura. Uncomplicated drug-induced thrombocytopenia is not associated with a previous personal history or family history of bleeding disease. Evidence of chronic blood loss, such as hypochromic anemia, is not present. There is no splenomegaly or other signs of hematologic or mesenchymal disease.

Examination of the marrow usually settles the question of leukemia as the cause of thrombocytopenia.

9. Treatment of aregenerative thrombocytopenia or aplastic disease of the marrow is often discouraging. Unless the marrow recovers spontaneously within a few weeks there is little reason to hope that therapy will be of any value. Corticosteroids are often abused in this situation, and patients are permitted to become physiologically damaged by steroid therapy prolonged far beyond any reasonable hope of improvement. There is no substantial evidence that corticosteroids can stimulate or hasten recovery of the injured marrow. The steroids may prevent petechiae by "nonspecific improvement of capillary stability," but this is of no clinical significance; petechiae are harmless, and it seems foolish to use such dangerous drugs as the corticosteroids to prevent them.

The use of testosterone has been observed to produce remissions of thrombocytopenia in a few cases of drug-induced aplastic disease of the marrow. In some instances the addition of corticosteroids to the regimen has resulted in correction of the anemia as well.[6]

Splenectomy is of dubious value, but occasionally it may result in an improvement of the platelet count sufficient to get the patient out of danger.[7] A patient with 25,000 platelets is much safer than one with half that number. On the other hand, a patient who already has 25,000 platelets is not improved by increasing the count to 50,000. The operation is probably a futile gesture in a case of complete aplasia of the marrow with 1,000 platelets.

Prevention of drug-induced dyscrasias is the optimum course, but it is impossible to know when or what patient may be injured. However, drugs known to be offenders should not be used unnecessarily. Patients who have had a drug-induced purpura should be carefully instructed concerning the nature of the reaction, the importance of avoiding the offending agent, and the possibility of the drug being present in patented mixtures. The sensitization does not disappear, and the sensitized patient remains in jeopardy.

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Achalasia of the Esophagus

LT. COLONEL NORMAN M. SCOTT, JR., M.C., U.S.A.

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ACHALASIA is a neuromuscular disorder of the esophagus in which absence or deficiency of the ganglia of the myenteric nerve plexus results in absent or deficient esophageal peristalsis. It is not due to abnormal functional spasm of the cardiac end of the esophagus.[1] Thus, "cardiospasm" is a misnomer and should not be applied to this condition. Normally, the distal esophageal closing mechanism (DECM*) inhibits gastroesophageal reflux by remaining in a state of tonic closure. Early in the swallowing process peristalsis is initiated in the upper esophagus, and simultaneously the DECM reflexly opens. Swallowed liquids drop through the open cardia by gravity; the peristaltic wave arrives to find the DECM still open to permit the solid bolus which it may carry before it to pass into the stomach.[2]

In achalasia the normal peristaltic wave, which is an integral part of the swallowing act, never develops, and the DECM, therefore, does not open properly. Swallowed material may, after a variable period of retention in the esophagus, either be regurgitated or by its weight force passage into the stomach. As time goes by, usually measured in years, the esophagus may dilate to become a large, atonic aperistaltic bag, readily identified on barium swallow X-ray examination (figure 1). Sweet[3] has designated this (the commonest form of achalasia) as Type I, to differentiate it from Type II which, even after years of symptoms, never develops such marked mega-esophagus; peristaltic activity is maintained, but it is erratic and abnormal. In Type I the distal segment of the esophagus is thin and atrophic; in Type II it is thick and hypertrophic. It is tempting to resume use of the old term "cardiospasm" in referring to Type II. However, the basic lesion, absence or deficiency of the myenteric plexus, is found in both types, and achalasia is the preferred name for both.

Early in the course of Type I achalasia, before dilatation has developed fully and at any time during the course of Type II, the patient may present himself with complaints of dysphagia and regurgitation. The barium swallow may not be conclusive, as it is in advanced Type I, and one must then evoke Cannon's law of autonomic denervation.[4] This law states that any structure deprived of its nerve supply develops increased sensitivity to stimulation by the chemical substance which had previously mediated its normal activity. Kramer and Inglefinger[5] have demonstrated that administration of a cholinergic drug will cause spasm of the esophagus of an individual with early achalasia but will not influence the normal. A positive reaction is readily apparent on contrast fluoroscopy and is often accompanied by substernal pain and regurgitation of the barium suspension. Acetyl-beta-methylcholine chloride (Mecholyl®), 0.1 mg./Kg. subcutaneously, is the most effective cholinergic drug; acetylcholine, 35–45 mg./minute intravenously is less reliable.[6] It is wise to have a syringe of atro-

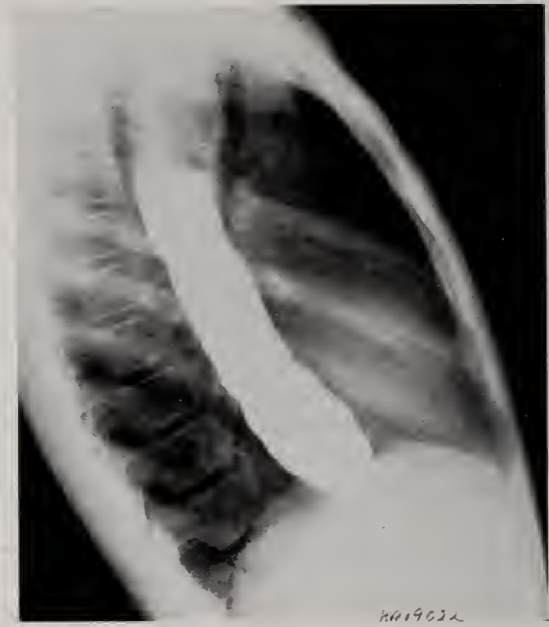

FIG. 1. Marked flaccid dilatation of the body of the esophagus.

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* The term DECM is employed because there is no anatomically distinct sphincter in this area, although functionally the distal 2 to 3 cm. contracts, acting as a physiologic "sphincter."

pine handy, since the dose of cholinergic drug is sufficient to produce marked and even dangerous systemic effects. Late in the course of Type I achalasia the muscle fibers of the esophagus may be so atonic and badly stretched that they cannot respond to a cholinergic stimulus. Thus Cannon's law is broken; the diagnosis should be clear in such cases without the expected response.[7] Adrenergics, such as epinephrine and l-norepinephrine, cause, if any change at all, diminution of even the irregular and erratic esophageal contractions and will not cause opening of the cardia despite large doses.[6]

The importance of the myenteric nerve plexus in the pathophysiology of achalasia thus is readily apparent clinically. Experimental evidence confirms this: Destruction of the plexus by cold[8] or by chemical means[9, 10] in animals results in classical esophageal dilatation and response to cholinergic stimulation. Vagotomy in humans, performed for unrelated subdiaphragmatic disease, has resulted in a transient condition resembling achalasia,[11] presumably because of too complete destruction of vagus fibers to include those serving the distal esophagus. Sympathetic stimulation (which is carried by postganglionic fibers and does not require transmission through ganglia of the myenteric plexus) thus can hold forth unopposed and the DECM cannot relax. This form of "achalasia" usually clears up spontaneously in a few weeks.

The cause of the deficiency of the myenteric plexus in achalasia is unknown. There is no real evidence of any congenital factors, although there are occasional reports of familial occurrence.[12] There is nothing to suggest neoplasm or trauma. Weiss[13] has presented clinical evidence suggesting that achalasia is a psychosomatic disorder with definite underlying organic change (the nerve plexus lesion) and with symptoms predictably influenced by emotional disturbances. Klumbies[14] claims that the results of prolonged psychotherapy, with hypnosis being utilized, are as good as those from surgical management. There is no evidence, clinical or experimental, of any mechanism whereby emotional disturbance eventuates in destruction of nerve ganglia, however.

In Brazil, where Chagas' disease is endemic, the incidence of achalasia is high. It is believed that the infecting organism, the *Trypanosoma cruzi*, invades smooth muscle tissue and releases a potent neurotoxin when it dies; typical achalasia can be produced in animals experimentally infected with these organisms.[15, 16, 17] It seems clear that achalasia in Brazil usually is due to destruction of the myenteric plexus of the esophagus by *T. cruzi*. It is different, however, from the achalasia seen in North America, Europe, and Japan in that other organs, such as the duodenum, colon and ureters, frequently are involved in the same patient[18, 19, 20]; hypertrophy of salivary glands with hyperamylasemia is also common in Brazilians with achalasia.[21]

In each instance, even those with salivary gland involvement, destruction of nerve tissue by *T. cruzi* and Cannon's law are believed to be the important pathophysiologic factors. Although Chagas' disease has been reported to occur in Texas,[22] careful evaluation of 6 native Texans with achalasia failed to disclose evidence of the disease.[23] The possibility of some other infectious etiology, possibly viral, is strongly suggested, however.

Achalasia usually makes its appearance during the third decade of life, although it has been reported to begin at all ages, from infancy to senility. It is slightly more common in women. Dysphagia and regurgitation are the important symptoms and occur at all stages of the disease. In its earliest stages, before esophageal dilatation develops, these symptoms may be the only clue, and administration of a cholinergic stimulus, as described above, may be necessary to prove the diagnosis. This is unnecessary later when great esophageal dilatation is obvious.

Occasionally dysphagia and regurgitation are quite insidious and the patient merely considers himself a "slow eater." In such instances discovery of the great esophageal dilatation comes as a surprise. In others, especially children[24] and older individuals, cough, chronic bronchitis, and recurring pneumonia secondary to overflow aspiration of retained esophageal contents may mask the dysphagia and draw undue attention to the pulmonary system.[25] Figure 2 is a lateral chest X-ray film of a 9-year-old girl hospitalized for evaluation of possible bilateral lower-lobe bronchiectasis. Careful inspection shows the fluid level in the greatly dilated esophagus. The diagnosis of achalasia was readily confirmed on barium swallow (figure 1). Treatment quickly relieved the pulmonary symptoms by elimination of the source of aspiration.

Differential diagnosis usually presents little difficulty in the late stages of Type I since nothing else will produce the severe, flaccid dilatation of the esophagus. Carcinoma of the gastric fundus, however, may cause dysphagia and regurgitation, symptoms strongly suggesting achalasia; this may be associated with enough dilatation of the esophagus to be misleading.[26] Careful barium contrast X-ray study of the gastric fundus is therefore essential in all of these patients, as well as cholinergic stimulation if necessary. A clue which should arouse suspicion of the presence of a fundal tumor rather than achalasia is the degree of resistance to the passage of instruments into the stomach. In achalasia the esophagoscope and the Hurst dilators (smooth rubber tubes, weighted with mercury, and of graduated diameter up to French 60) usually pass through the DECM with surprisingly little resistance; some relief of the dysphagia is often noted temporarily. In fundal tumors, passage of even small tubes may be difficult; angulation and distortion of the distal esophagus may prevent advance of the esophagoscope into the extreme distal esophagus. Even if successful these maneuvers do not bring the brief respite often experienced by the patient with achalasia. Biopsy at esophagoscopy is therefore an important part of the evaluation; even though only normal esophageal mucosa presents itself at esophagoscopy, gastric tumor invading upward in the submucosa may be found on biopsy (figure 3).

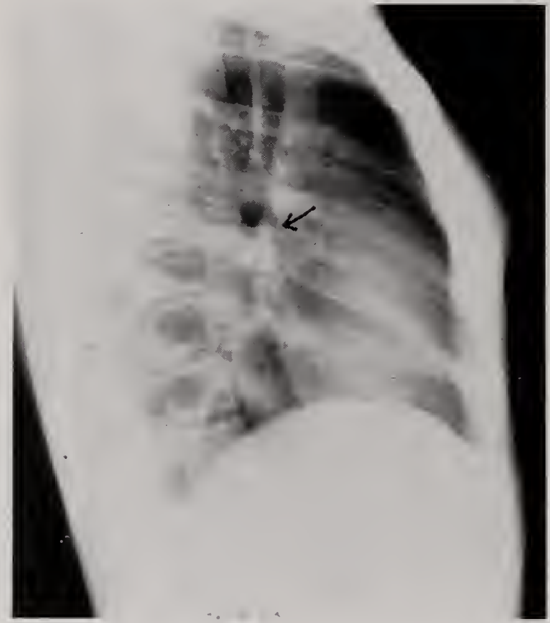

FIG. 2. Careful inspection shows the fluid level in midesophagus.

Carcinoma of the esophagus itself is a late complication of achalasia and occurs more commonly than in the normal esophagus.[27, 28] It should be looked for in any patient with long-established achalasia whose symptoms change or recur following previous successful treatment. Evaluation should include further barium contrast X-ray examination and esophagoscopy, with biopsy if indicated. Leukoplakia may be found and, as usual, should be considered a premalignant lesion.

Treatment of achalasia requires an attitude of conservative aggressiveness. Drug therapy offers no help; transient relief may follow swallowing of a local anesthetic, but this soon loses its effectiveness. Knowledge of the pathophysiology of achalasia makes it obvious why anticholinergics do not work. The generalized effects of cholinergics preclude their use. Adrenergic drugs do not influence the DECM and diminish what little spontaneous contractibility the esophagus may have retained.[6]

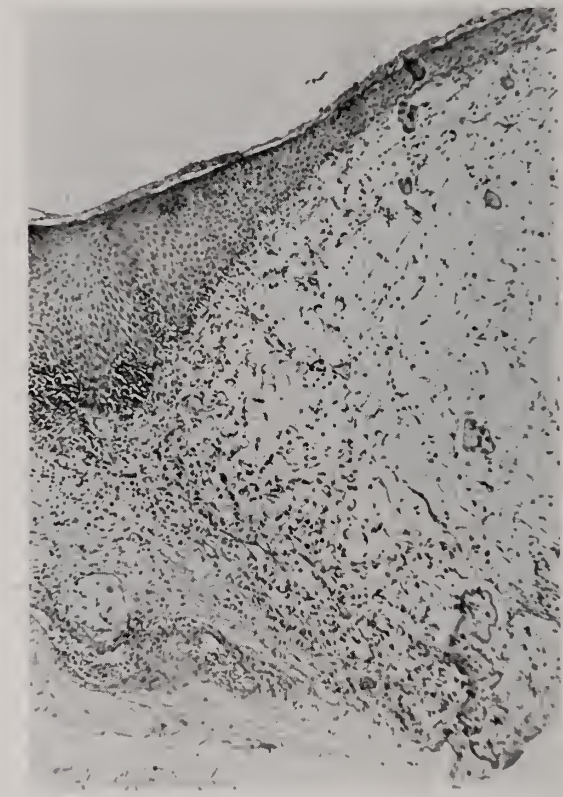

FIG. 3. Gastric carcinoma dissecting upward beneath the esophageal stratified squamous epithelium.

At least 80 per cent of patients with achalasia will respond well to nonsurgical transoral dilation of the DECM. The object is, literally, to tear and stretch the muscle fibers and connective tissues of the distal esophagus. Maintenance of the normal state of tonic closure is not possible following proper dilation, and swallowed material drops more easily into the stomach. If accomplished early enough, the marked dilatation of Type I may be forestalled. Several instruments are available—the Rider-Moeller pneumatic dilator,[29] the Browne-McHardy mercury pneumatic dilator,[18] and the Starck metal dilator.[30]

Before using one of these, however, it is wise to clear up any esophagitis which preliminary esophagoscopy may have revealed. This responds well to daily drainage and saline lavage of the esophagus, thus preventing prolonged retention and stasis of swallowed material. Concurrently, daily preliminary dilation with the Hurst mercury weighted bougies should be accomplished, progressing steadily to French 50 or 60. This facilitates drainage and also helps the patient lose his fear of transoral intubation, making the definitive forceful dilation easier.

The dilating instrument is introduced under fluoroscopic control, and when it is properly placed astride the cardia the forceful stretching of the DECM is accomplished. The patient should be warned to expect pain, and, indeed, unless it is painful and unless mild bleeding occurs, it is likely that the maneuver will have to be repeated. At least half the patients will have permanent relief of dysphagia and regurgitation after 1 forceful dilation. A second treatment several days later will do the same for about half of the rest. Esophageal rupture occurs in about 1 per cent of patients treated by dilation. Immediate surgery and antibiotics are indicated.

Surgical management is necessary in the 20 per cent of patients in whom transoral dilation is unsuccessful, but at least 2 dilations should be tried before the method is abandoned; more attempts are not only fruitless but may be dangerous because scarring of the distal esophagus might increase the chances of rupture. Occasionally surgery is indicated as the first choice; patients who cannot or will not coöperate in the maneuvers required for peroral dilation may prefer surgery. Occasionally lengthening of the esophagus may have occurred. The resulting sigmoid distortion (figure 4) prevents negotiation of any instrument through the DECM, even with the use of a previously swallowed string; all hope of nonsurgical management must be abandoned.

Surgery having been deemed necessary, the operation of choice is the modified Heller esophagomyotomy.[31, 32] An abdominal approach usually will permit accomplishment of the simple linear incision through the muscle layers of the DECM. Cardioplasty which adds transverse suturing of the linear myotomy incision has been abandoned by most surgeons because of the high rate of postoperative reflux esophagitis, which may be worse than the original disease. Esophagitis might be avoided by the addition of vagotomy and gastroenterostomy to the cardioplasty, but all this is unnecessary with simple myotomy.

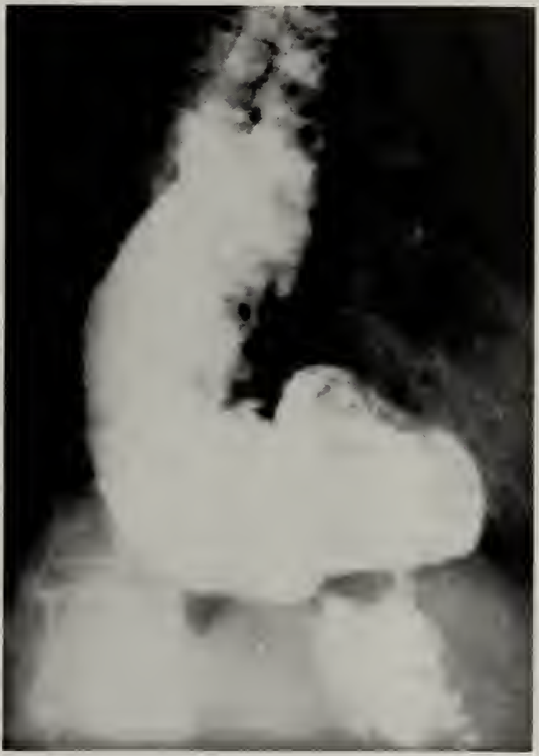

FIG. 4. Markedly dilated and lengthened esophagus with sigmoid deformity prohibiting passage of dilator through DECM.

In the occasional patient in whom both surgery and transoral dilations for some reason cannot be accomplished simple daily drainage of retained material and lavage with water will bring partial relief. With a little training the patient himself can learn to accomplish this at home.

Summary

Achalasia is a neuromuscular disease of the esophagus due to deficiency of the myenteric plexus; it is not "cardiospasm," and that name should be abandoned. The cause of the defect in the ganglia is not known, except in Brazil where the *Trypanosoma cruzi* (the cause of Chagas' disease) is believed responsible. Treatment by transoral, forceful dilation is successful in most cases; in the remainder the Heller modified myotomy is the operation of choice.

(*Continued on page 213*)

Mass Casualty Care and Human Behavior

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In 1906 William James[1] brilliantly documented some of the reactions observed in the San Francisco earthquake and fire. Since that time civilization has experienced numerous disasters, some of great, some of small magnitude. In orienting ourselves to the potential problems at hand we have the experiences of victims of the Hiroshima and Nagasaki bombings as our best frame of reference.[2] Since that time various authors have concerned themselves at length with evaluations of what was observed at the time of those disasters, plus reporting on the many disasters of smaller magnitude which have occurred in subsequent years and were available for field study. In 1961 the National Academy of Sciences published an inventory entitled "Field Studies of Disaster Behavior." [3] This inventory encompasses 114 field studies of human behavior in 103 different disaster situations, the majority of which have been conducted in the past 10 years. In addition to these disaster reports we also have available the experiences recorded during both World Wars and the Korean conflict relative to the behavior of troops and civilian populations during periods of intense stress. What appears noteworthy is the fact that the behavior of individuals and groups under these situations referred to have in general been strikingly similar.

McGonagle[4] has commented on popular misconceptions which persist in considerations of psychologic reactions to stress. In considering psychologic reactions in the event of future disaster I would like to list misconceptions under 3 major headings.

The first is that under disaster conditions, widespread panic of an hysterical, uncontrolled nature is probable. A second misconception is that psychologic reactions to stress are likely to persist for great periods of time and to result in chronic psychiatric states. (These misconceptions, with all they entail, I would refer to as negative expectations.) The third misconception, one which is at the other end of the pole so to speak, is an overoptimistic appraisal of the availability of medical and other "helping" agencies in the event of mass disaster. It is not difficult to recognize the basis for these misconceptions. Men and groups of men have always tended to handle the fears involved in anticipating possible disasters by the use of mechanisms which express a feeling of partial or total hopelessness or that tend to deny the personal impact of such events.

We now have sufficient information to make at least some general predictions as to what the behavior of individuals and groups in future disaster situations might be and to say that there is nothing particularly new in this regard. What may be new or would seem to me to require a "new approach" is an attempt to utilize the experiences from the past to further evaluate our expectations for the future.

In regard to the first misconception, that is, that panic is likely to occur, suffice it to say that almost all available studies indicate that a stunned and bewildered response is a far more likely group reaction than that of panic. In discussing 4 disaster situations Tyhurst[5] pointed out that at the time of such severe stress approximately 10 to 25 per cent of all individuals concerned handled the situation in a fairly calm and collected manner, that the large majority of individuals behaved in the "normal" dazed and somewhat immobile manner, and that a small group of some 10 to 25 per cent behaved in a confused, anxiety-ridden, somewhat hysterical manner. Panic is considered likely to develop only when an overpowering trauma is experienced or expected and when all avenues of possible escape are closed. It is unlikely that any methods can be developed to preclude this from happening in the rare instances in which the criteria for its occurrence may exist. However, it would seem to me that much can be accomplished in ameliorating the "stunned" and dazed response which might be anticipated on the part of most individuals and groups.

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In regard to the second misconception, experience in combat, as well as the observations of individuals subjected to disaster situations, there is ample evidence that psychologic reactions to these situations are, in the main, transient and reversible. It would be foolhardy to claim that psychologic reactions to stress should be ignored. The reports from Hiroshima amply document the fact that ignoring such reactions could lead to a nearly impossible problem of handling any of the medical problems connected with the disaster. Recognizing, however, what the reactions are likely to be and having some well-laid plans to deal with them should be the first and perhaps the most important step in diminishing their severity.

It has already been mentioned that panic is rare but when seen is usually manifested by pointless physical activity. In this regard, running away from the immediate site of destruction does not necessarily constitute panic and may be the best protective measure for the individual.

The most frequent symptom, previously referred to as a "dazed" behavior, may well be a form of transient depression. Such individuals fortunately are quite easily led and with proper leadership can frequently be a help to the agencies involved in rescue and therapeutic efforts. One might expect to find, in addition, many individuals with somatic complaints on a functional basis and occasionally overactive or hypomanic syndromes. Drayer, Cameron, Woodward and Glass[6] warn against the use of sedatives in any of these reactions since their use may tend to fix a transitory reaction and put otherwise capable people out of functioning capacity.

In a recent article on the psychologic aspects of disaster by Glass,[7] the reactions to the stress of disaster are presented in a conceptual model involving particular time periods of a disaster. These are the preimpact period, the warning period, the impact period, the recoil period, and the postimpact period. He describes the behavioral probabilities in each of these sequential time phases. In presenting this model he points up the need for an exploration of the methodology relating to prevention and management of psychologic problems in disaster. The need for a positive expectancy of performance for many and the possibility of channeling the behavior of the group into effective functioning are emphasized.

The third misconception, related to the idea about the availability of medical and other supported functional groups, is the one which I wish to explore in greater detail. It would seem imperative, in discussing what medical personnel can do in a disaster, to try to review what has been possible in the past and try to determine what might improve functioning in the future. Medical personnel are not immune to the very same reactions under stress that occur in all other individuals. The best laid plans for the treatment, not only of psychologic but also of the surgical and medical problems arising in a disaster situation, can go for naught if the individuals involved in such planning fail to take cognizance of some of the serious problems of a psychologic nature which may befall the treating as well as the treated group. Study after study has documented the fact that certain types of individuals are likely to emerge as the leaders in various phases of disaster work. Shortly after impact, the "acting" individuals usually energetically attempt to channel efforts toward escape and care of casualties. If those individuals who emerge in this type of activity were not aware previously of plans for the handling of problems, one can easily see that their leadership may not always be optimal. The "thinkers" and "planning" type individuals are less likely to emerge as leaders early in a disaster situation. However, their contributions are usually deeply felt in later postimpact periods. One of the issues, it seems to me, that is not fully faced by those of us who concern ourselves for planning disaster care has to do with our own availability at the time of disaster.

Assuming that an individual who has been involved in disaster planning survives the initial impact, there are many possibilities which may interfere with his ability to be of service. The first and foremost is the allegiance of the individual to his family and the conflict that this inexorably creates relative to his mission of helping and treating victims. This may create serious psychologic reactions in some medical personnel. Donald Michael[8] pointed out that one can expect some individuals in a safe zone to return and help those in a disaster zone only if it is clear that (1) their families will be cared for, (2) it is clear that their families and possibly themselves are not in the path of dangerous fallout, and (3) return to the danger zone would not mean sickness, sterility, and/or death from radiation. These are problems which obviously have no simple answer. However, this points up the need for those individuals who would normally be expected to render treatment to make more advanced planning than we would expect of others in the population. This raises philosophical problems.

All of the "ifs" cited above, as documented by Michael, are not necessarily nonhumanitarian. Obviously, it would not be serving anyone to enter an area in which treatment would have only temporary effects and where both the treated and the treating individuals are endangered.

Another problem is the danger in "overplanning" for disaster. By overplanning I refer to a tendency to try to provide plans in such detail as to open up the possibility of reactions to things unplanned. I believe I can give an example from my own personal experience. In the early 50's I attended an atomic detonation on the desert in Nevada; on this occasion troops and observers were placed in trenches quite close to Ground Zero. All the individuals involved were given exceedingly thorough briefings regarding what they might expect. In my estimation, few, if any, of the individuals involved were very apprehensive prior to the detonation. The almost overpowering visual and auditory stimuli from the detonation were not particularly frightening, since they had been well explained in advance. However, because of the proximity of the trenches to the detonation point, a rather violent ground tremor, or, if you wish, earthquake-like sensation, was experienced. Although this resulted in no severe psychologic reactions, it was not anticipated and was, therefore, more frightening than the more realistically threatening visual and auditory stimuli.

The point I would like to make in formulating plans for managing future behavior is that it is not advisable to try to include all possibilities in minute detail (this is impossible anyway) because in so doing it can set up the opportunity for untoward reactions in response to unanticipated problems. A shelter program, for example, planned in detail for all elements except ventilation creates as many problems as it solves.

My own recommendations for treatment orientation relative to psychologic reactions to stress would place major emphasis on a general preventive frame of reference. In this regard I would plead for an attitude of positive expectancy with a realistic awareness of some of the calamities that can occur but with the equally realistic awareness that the survivors of such calamities can and must have help that, if available, should enable a large percentage of them capable, in turn, of helping others.

I recognize that research in this area and certainly what has been set forth above raises many problems and provides few solutions. Nonetheless, it is important to recognize that man has great strengths which, in time of stress, are frequently evoked. In commenting on this, Michael said, "Given leadership, especially in disaster, man will follow it, indeed he craves it. Leadership means psychologic support and physical organization. Leadership means society." The recognition that problems of a psychologic nature affect not only the groups struck by a disaster but also those trained to treat is of paramount importance in further evolving plans for mass casualty care.

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Impotence as a Manifestation of Neurologic Disease

Report of Three Cases

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According to Hastings,[1] impotence is "that condition wherein the male cannot obtain or maintain penile erection satisfactory to him for purposes of heterosexual coitus." Certain neurologic diseases may produce impotence, but as indicated by this same author[2] it is difficult to conceive of a neurologic lesion which produces no other signs and symptoms. The purpose of this communication is to emphasize that impotence may, in fact, be a prominent and rather distressing symptom in neurologic conditions, as well as one of the early or presenting complaints.

Report of Cases

Case 1. A 50-year-old white male officer who had been married for many years and more recently retired from active military service was admitted to Walter Reed General Hospital on September 3, 1963. He complained of increasing fatigue during the year prior to admission and had slept 12 to 13 hours a day. He had been unable to have a penile erection and had had no sexual relations for the past year. In slightly less than a year he had become aware of intermittent pain in the feet and a "pins and needles" sensation; this had gradually spread upward to involve the entire lower extremities. The paresthesias were then replaced by numbness. Over the past 6 months his gait had become increasingly unsteady, and he had fallen several times. Within the past year he had also noted some slowness in thinking, some difficulty with recent memory, and an increasing irritability. There had been no loss of weight or appetite.

Recurrent bronchitis requiring bed rest had occurred for about a week every winter. There were 8 siblings living and well. Both mother and father had died of "old age" at 86 and 85 years, respectively.

For the past 5 years the patient had consumed about "a fifth of whiskey" per week and had smoked about 1½ to 2 packages of cigarettes per day for the past 30 years.

During the month prior to admission 2 or 3 episodes of dribbling type urinary incontinence had occurred.

The patient was a well-developed, well-nourished athletic type of man in no acute distress. He tended to speak slowly, had some difficulty in recalling specific recent events, and seemed somewhat suspicious of the professional people around him. He had a wide-based ataxic gait and a positive Romberg sign in which he fell to either side. The deep tendon reflexes in the upper extremities were normally active and equal, whereas in the lower extremities they were very hypoactive and equal. A Babinski sign was not elicited. The superficial abdominal reflexes were absent. There was a loss of toe position-sense in both lower extremities and a bilaterally diminished knee position-sense as well. Vibratory sense was diminished in the left lower extremity and absent in the right lower extremity. There was a patchy loss of light touch, pinprick, and pain sensations in both lower and upper extremities as a stocking-glove distribution with fading to normal sensation disto-proximally at about the level of the knees and elbows, respectively.

X-ray films of the skull and chest were interpreted as being within normal limits. The hemoglobin was 10.8 Gm.; hematocrit, 32 per cent; and the white blood cell count, 6,000 with 50 neutrophils, 42 lymphocytes, 1 monocyte, and 7 eosinophils. Hyperchromasia and macrocytosis of the red blood cells were noted. On peripheral smear the platelets appeared normal. Red blood cell indices were as follows: mean corpuscular volume, 135 cu. microns; mean corpuscular hemoglobin, 46.5 micromicrograms; mean corpuscular hemoglobin concentration, 34.5 Gm. A urinalysis was normal. The fasting blood sugar was 86 mg.; the blood urea nitrogen, 26 mg.; the uric acid, 6.9 mg.; total bilirubin, 1.1 mg.; direct bilirubin, 0.1 mg. The spinal fluid was clear and colorless with normal opening and closing pressures; and with sugar, 72 mg.; chlorides, 130 mEq./L; and total protein, 38 mg. Serologic tests for syphilis in the spinal fluid and blood were negative. The spinal fluid cell count was 1 lymphocyte per cu. mm. and the colloidal gold curve, 0011110000. A gastric aspirate was reported to show the total acid to be 10 units and the free acid, 3 units. This was thought to be an error since the pH of the specimen was 6.8. An electroencephalogram was reported as follows: basic pattern 8 to 9 per second alpha and 7 per second theta in all leads other than occipital and more prominent frontally for dysrhythmia of Grade I to II. Hyperventilation produced no significant build-up. There was some drowsiness but no sleep. The diagnostic impression was borderline awake and drowsy EEG.

Because of the hematologic findings, including cell indices, consistent with a macrocytic hyperchromic anemia, hematology consultation was obtained. The Hematology Department conducted numerous tests including bone marrow biopsy and biopsy of the gastric and intestinal mucosa. All of their findings were consistent with the diagnosis of pernicious anemia. A Schilling test without intrinsic factor was performed and gave a 24-hour excretion of "labeled" B_{12} of 2.2 per cent. Because of the profound neurologic findings it was thought that vitamin B_{12} therapy should be instituted at the earliest possible date. A Schilling test with intrinsic factor was to be performed on an outpatient basis at a later date. Therapy with vitamin B_{12} was instituted. The patient received, in addition to the 1,000 micrograms of B_{12} as a "flushing" dose prior to the Schilling test, 100 micrograms of vitamin B_{12} daily for a period of 12 days. By the time of his discharge from the hospital the patient had noticed considerable clearing of his mental cloudiness and a marked improvement in his memory for recent events. He became much more cheerful, and there was less paranoid ideation. The Romberg sign became negative, and the gait was greatly improved although the tandem walk was still performed with some difficulty. Vibratory and toe position-sense returned to both lower extremities prior to discharge. The patient was discharged with follow-up appointments in the Outpatient Clinic of the Departments of Neurology and Hematology. Schilling tests with intrinsic factor and another EEG for comparison were to be done at a later date. The final diagnoses were (1) subacute combined degeneration of the spinal cord, treated; improved, and (2) pernicious anemia, treated; improved.

On outpatient visits the patient continued to receive intramuscular B_{12} injections of 1,000 micrograms weekly. After 1 month he was alert and active, felt no unusual fatigue, and was no longer impotent. A Schilling test with intrinsic factor was not considered necessary.

Case 2. A 22-year-old white male soldier who had been very recently married was admitted to Walter Reed General Hospital on July 15, 1963. He had been gradually developing weakness of both lower extremities which had suddenly worsened. In the last week of May, 1963 he had a numbness and paresthesia in the lower extremities and in both hands. Within a few days the numbness and tingling in the hands disappeared but the sensory disturbance persisted in the lower extremities. In the first part of June 1963 he began to have shooting pains in the lower part of his back. These began insidiously but within a few days became worse and radiated into the gluteal regions and down the posterior aspects of the legs. He was soon seen at his local Army Dispensary where the possibility of a herniated lumbar nucleus pulposus was entertained. At about this time he developed a slight weakness of his lower extremities which, along with the paresthesias and numbness, persisted throughout the latter part of the month of June 1963. On July 6, 1963 the patient was married, and during the following week had difficulty in maintaining erection during intercourse, whereas previously he had had none. By July 15, 1963 the weakness of both lower extremities became quite pronounced and he was admitted and transferred, via his local medical unit, to Walter Reed General Hospital on the same day.

The patient was an alert, coöperative soldier who had difficulty in standing because of weakness in both lower extremities, more marked on the right. He walked with a broad base. The cranial nerves were intact; there was no nystagmus. There were supernumerary nipples at the costal margin. Rectal examination was negative, and the anal sphincter tone was considered fair. There was no sign of cerebellar dysfunction. The deep tendon reflexes in the upper extremities were graded at 2+ and equal (grading from 0 to 4+). The knee jerk was graded at 3+ bilaterally and the ankle jerks at 2+ bilaterally. There were bilateral Babinski signs. The superficial abdominal reflexes were absent on the right and sluggish on the left. The patient had a sensory loss to all modalities extending distal to T_{10} level. The sensory loss was complete on the left and nearly complete on the right.

The white blood cells numbered 14,000 with 73 per cent neutrophils, 2 per cent band forms, 21 per cent lymphocytes, 3 per cent monocytes, and 1 per cent eosinophils. The sedimentation rate was 11 mm. per hour, the hematocrit was 47 per cent, and the hemoglobin, 15.6 Gm. A urinalysis revealed no abnormalities. The spinal fluid (July 16, 1963) revealed a cell count of 21 lymphocytes per cu. mm. and total protein, 54 mg. Serologic tests for syphilis in the spinal fluid and blood were negative. Spinal fluid examination on July 24, 1963 revealed a cell count of 41 lymphocytes per cu. mm.; total protein, 53.0 mg.; and globulin, 11.0 mg. (gamma globulin, 20.8 per cent). Culture of the spinal fluid was negative. Colloidal gold was 0012221000.

On July 16, 1963 under local Xylocaine® 1 per cent anesthesia a myelogram was performed, which was reported normal. The day after the myelogram was performed the patient was greatly improved, in that there was a return of considerable strength to both lower extremities. During the next several weeks there was gradual return of strength to the lower extremities which permitted the patient to go to the bathroom several times a day. There was also a gradual return of sensitivity to all modalities of stimulation. The patient maintained the hyperactivity of the reflexes, more marked on the right. He gradually lost the persistent extensor plantar response on the left, but it persisted on the right. By August 2, 1963 he had improved to the point where he was permitted a pass over the weekend. During the month of August 1963 there was gradual general improvement, and on September 3, 1963 the patient was granted a 4-week convalescent leave.

The patient was readmitted from leave on October 4, 1963. He stated that during his convalescent leave he was improved "70 per cent." He had no difficulty with his bowel function. He was able to maintain an erection for a much longer period of time than a month prior to his return from leave, and he became aware of heightening of sensitivity to visceral sensations. He still had considerable difficulty with weakness in both lower extremities, and this was more marked on the right. He walked with his feet separated approximately 10 inches, and there was a tendency for him to circumduct the right leg. Heel-and-toe walking remained difficult on both sides. There were hyperactive reflexes on both sides. The reflexes were more active on the right, where there was a persistent extensor plantar response. The sensory status was improved (all modalities) bilaterally with a sensory level at the umbilicus. During the latter part of the patient's hospital stay he developed no neurologic signs. His vision and audition remained normal. There was no nystagmus. No cerebellar signs evolved. There was a possibility that he had some slight weakness of grip bilaterally, but this was not a striking finding. It became obvious during the last 2 weeks of hospitalization that his condition had stabilized.

The patient was examined by the Ophthalmology Service which reported no ophthalmologic abnormality. He was seen by the Physical Medicine Service which confirmed the clinical impression that he had a paraparesis, more marked on the right, and that this caused him considerable difficulty in ambulating in a normal manner. Coördination and strengthening exercises were prescribed for the lower extremities and also gait training. He was discharged from the hospital and retired from military service for medical unfitness on January 28, 1964. The final diagnosis was myelitis, T_{10}, moderately severe, etiology undetermined, possibly due to an episode of complete transverse myelitis with rapid recovery, or a transverse myelitis-like injury to the spinal cord because of occlusion of the anterior spinal artery, with moderately severe motor and sensory impairment below T_{10}.

Case 3. This patient was a 31-year-old white, married, male officer who was admitted to Walter Reed General Hospital on November 7, 1963. His chief complaints were weakness of the legs, excessive fatigue, and frequent bifrontal headaches. He had also noted intermittent complete and partial impotence occurring about every 1 or 2 weeks for the past several months. In 1959, while in Korea, he felt some "tightness" of the muscles above the knees and some pain in the Achilles tendons. He attributed this to wearing combat boots and noted that the pain in the ankles was relieved by wearing low-cut shoes, but the "tightness" in the muscles above the knees persisted. He also found that by putting mild pressure only on the sole of the shoe he could produce rapidly alternating movements at the ankle (as seen in ankle clonus). This intermittent ankle clonus continued for the following 3 years, and the patient also had some weakness of the legs plus the "tightness" which became more intense with any type of sustained physical activity or heavy work. He was reluctant to invite the attention of a physician to his physical difficulties since he hoped to receive a Regular Army commission in contradistinction to his temporary one. In June 1963 his superiors noted that he had a peculiar gait and advised him to seek medical attention, which he did and was subsequently hospitalized for a 5-week period. At this time he reported increasing fatigue to a degree that he would perform his military duties, then go home, and shortly after supper would go to bed. He also had frequent frontal headaches which occurred nearly daily and would come on during the day. A myelogram and pneumoencephalogram were performed, both of which were reported as negative. The spinal fluid examination was recorded as within normal limits except for a colloidal gold curve of 5443310000. The patient was discharged and given imipramine drug 3 times a day plus vitamin B complex tablets to be taken 1 per day. Since this hospitalization his symptoms had become more severe. About 3 months prior to admission to Walter Reed General Hospital he noted failure or partial failure of penile erection in sexual intercourse. There were no bladder or bowel disturbances.

The patient had had "asthma" until 12 years of age. He was desensitized by "taking shots." There were no present allergies. He had pneumonia twice, once at 14 years and again at 27 years of age. There were no sequelae. Appendectomy had been performed in 1957, and the repair of a left hernia in 1961. No spinal anesthesias had been administered at either operation; general anesthetics had been used.

The patient was adopted as a baby and had no knowledge concerning heredofamilial disease. He had been married for 8 years. He was a college graduate. There was no history of taking drugs, and alcoholic beverages had not been indulged in. About 1 package of cigarettes had been smoked per day.

The patient was a well-developed, well-nourished white man of moderate physique who was alert and coöperative. There was a slight decrease in hearing in the right ear; otherwise the cranial nerves were intact. The patient walked with a spastic gait. He was unable to walk on his heels, and this suggested, and was confirmed by formal muscle testing, that there was weakness of the dorsiflexor muscles of both feet. There was a mild wasting of the thigh muscles and a slight wasting of the lower leg muscles bilaterally. The knee and ankle tendon reflexes were 4+. There were bilateral sustained ankle clonus and a bilateral Babinski sign. There was an increase in the deep abdominal reflexes and an absence of the superficial abdominal reflexes. Vibratory sense, by testing with the tuning fork, showed a definite decrease at the ankles and knees bilaterally, whereas there was a relative preservation of the position sense as tested by passive movement of the toes.

A hemogram was normal. Serologic tests for syphilis of the spinal fluid and blood were negative. X-ray films of the skull, cervical spine, and chest were all within normal limits. A repeated lumbar puncture at this hospital revealed normal manometrics, a clear spinal fluid with 6 white blood cells per cu. mm., a total protein of 26 mg., and a total globulin of 4.37 mg.

The hospital course was relatively unremarkable. It was thought that the frontal headaches were a manifestation of tension and depressive features. The patient was given tranylcypromine, 10 mg. 3 times a day in an effort to relieve the depressive symptoms, and there was a mild improvement. He was also given vitamin B complex tablets 3 times a day. The patient's neurologic condition remained relatively unchanged, including the degree of impotence. The final diagnosis was multiple sclerosis, spinal form, manifested by impotence, spastic type of weakness of the lower extremities, and decreased appreciation of vibratory sensation in the lower extremities.

Discussion

Since patients do not readily volunteer information about sexual intercourse, it is necessary to tactfully query the patient about such matters in order to elicit the symptom of impotency. With a good doctor-patient relationship this is not very difficult. In all 3 cases presented here it was not until a particular inquiry was made in the matter of sexual function that the problem of impotency was discovered. When impotency is found, follow-up questioning during the course of treatment of the underlying condition may reveal success or failure in the treatment from this particular standpoint, as in case 1. In this instance treatment was successful in alleviating the impotency along with other neurologic manifestations and with much gratification on the part of the patient.

In case 2 the threat of impotence to a newly married man caused considerable apprehension, and the restoration of the ability to maintain an erection was most welcome to the patient as his disease underwent regression. One might bear this particular case in mind as similar cases come to one's attention, especially in the matters of prognosis, counseling, and the alleviation of apprehension and anxiety. In regard to case 3, it might be mentioned that further study of impotency in multiple sclerosis seems indicated. The association of multiple sclerosis with impotency is not an uncommon one. In a recent study at the Mayo Clinic[3] it was disclosed that of 54 male patients with multiple sclerosis 4 men mentioned impotence as a presenting symptom and an additional 10 men complained of it. Thus the incidence of impotence was 26 per cent (occurring in 14 of the 54 male patients). Whether the impotence described in their study was absolute, partial, or variable, as in our case 3, is not clear. Considering the all too common occurrence of multiple sclerosis in the field of neurology, some investigation of this symptom's prevalence, degree, and relationship to remissions and exacerbations, as well as partial or complete recovery or even ultimate loss of potency, seems in order. Furthermore, the possibility of psychic depression, so often found in multiple sclerosis patients, must be considered as the cause of the impotence.

It has also been demonstrated, from case 3, that impotence can occur without a corresponding disturbance in bladder function even though penile erection, like bladder function, is dependent upon essentially the same innervation via nervi erigentes, the sympathetics, and the internal pudendal nerves.[4] Clinical experience has also shown that there can be a disturbance of bladder function without any disturbance in potency.[5] Why such a selectivity can occur is not clearly elucidated. There are many points in the neuroanatomic control of erection from the sacral segments of the spinal cord to other points of higher functional control including the reticular formation of the brain stem, the hypothalamus, the limbic system, and, finally, the cerebral cortex with the various connecting links to these structures, which make for quite an intricate complex.[5] The levels of spinal cord trauma from cervical to lumbosacral region produce an increasing incidence of impotency.[5] Bladder function, on the other hand, seems particularly vulnerable at the cervical level.

It is also true that operative procedures such as cordotomy take their toll by producing impotence or disturbance in bladder function or both. Similarly, other intrinsic diseases of the central nervous system, such as tabes dorsalis, pseudotabes, syringomyelia, and spinal cord tumor, can affect potency, bladder function, or both. A disease affecting the central nervous system and the autonomic nervous system has been described by Shy and Drager[6] in which impotence and urinary and rectal incontinence were prominent features. Many extrinsic diseases such as diabetes mellitus and primary amyloidosis, as well as drugs such as alcohol and morphine, can play upon the nervous system to produce impotence. The neuroendocrinal diseases, especially hypothalamo-pituitary dysfunction as in pituitary adenoma and other so-called sella-turcica syndromes, including myotonic dystrophy in the later stages, can also produce impotence. Most frequently, impotence is purely a manifestation of a psychic disorder which may be amenable to psychotherapy.

Impotence may be a manifestation of a neurologic disease; to date, premature ejaculation has not been so reported. In this condition the male achieves orgasm and ejaculation before he wishes to do so, and, according to Hastings,[7] this is treated separately from impotence for 2 reasons: (1) Premature ejaculation is an extremely common form of sexual difficulty, and (2) there is no general agreement that premature ejaculation is a psychologic form of impotence. Various methods of reducing the input or of raising the threshold to tactile or psychic stimuli are suggested as possible treatment.

Summary

Three cases of intrinsic neurologic disease in which impotence was a prominent symptom have been presented. In 1 case treatment of the underlying condition, pernicious anemia, resulted in a recovery of potency, as well as the other neurologic manifestations of subacute combined degeneration of the spinal cord. The various causes of impotency have been presented for consideration in a particular case. A distinction has been made between male impotency and premature ejaculation.

Acknowledgment: The author wishes to express his indebtedness to Captain Richard E. Paulsen, Lt. Colonel Edwin S. Busch, and Captain John E. Perito, of the Medical Corps of the United States Army, for preparation of rough drafts of summaries of cases 1, 2 and 3, respectively.

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Achalasia of Esophagus—Scott

(*Continued from page 205*)

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Extra-intestinal Amebiasis

Report of Four Cases

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Although the clinical features of amebiasis have been appreciated for many years, preventable morbidity continues to occur because of delay in diagnosis. The diagnosis remains difficult because the disease is uncommon in this country, the clinical features are not necessarily distinctive, and the trophozoite is often difficult to isolate.

Four cases of extra-intestinal amebiasis will be presented to emphasize this feature of the disease and the diagnostic techniques presently available.

Report of Cases

Case 1. Shortly after arriving in Southeast Asia in March 1962 a 44-year-old Caucasian man began to pass 2 to 4 loose, brown stools daily. Except for mild diarrhea he was well until December 1962, when hypogastric cramps and anorexia developed. Seven days later fever and right upper quadrant pain accentuated by movement or a deep breath appeared. Increasing fever, toxicity, and excruciating right upper quadrant pain prompted his hospitalization on December 30.

The patient appeared to be acutely and chronically ill with a temperature of 101.2°F. There were medium rales and rhonchi at the right posterior lung base. The right leaf of the diaphragm was elevated and its excursion limited. The liver was exquisitely tender and palpable 5 cm. below the right costal margin.

The white blood cell count was 18,000 with 84 per cent neutrophils. The prothrombin time was 17.3 seconds; SGOT, 64 units; bilirubin, 1.5 mg. with a direct fraction of 1.0 mg.; bromsulfalein (BSP), 45 per cent retention in 45 minutes; alkaline phosphatase, 4.8 sigma units. Repeated examinations of the stools failed to reveal ova or parasites.

An amebic abscess of the liver was considered likely, and emetine therapy was begun. The patient improved but continued to have afternoon fever. Three days after admission needle aspiration of the liver was performed. An abscess was entered from which 90 c.c. of brownish, purulent material was removed and replaced with air. Smears of the aspirate failed to reveal Amoeba. Chloramphenicol and diiodohydroxyquin were added to the therapy. The patient was afebrile by the seventh hospital day, and within 2 weeks liver function studies had returned to normal. Serial X-ray films of the abdomen showed a gradual decrease in the size of the air-filled abscess-cavity. Two months later the man was well.

Case 2. In early May 1963 a 32-year-old Caucasian man, a long-time Maryland resident, experienced the explosive onset of a watery, brown diarrhea with chilly sensations, low-grade fever, anorexia, and malaise. Two weeks later right upper quadrant cramping pain necessitated hospitalization elsewhere. A temperature of 100.5°F and right-sided abdominal tenderness were noted. Penicillin, streptomycin and tetracycline were ineffective. Acute cholecystitis was suspected, and an exploratory laparotomy was performed on the eighth hospital day. An inflamed "right" colon was discovered. The liver was thought to be normal. The appendix was removed, but microscopic sections revealed only nonspecific inflammatory changes. Broad-spectrum antibiotics were continued, but abdominal pain and daily fever persisted. Stools were examined at that time for ova, parasites, and bacterial pathogens, but none were found. Liver function studies were normal except for the alkaline phosphatase which ranged from 8.5 to 18 Bodansky units (BU). White blood cell counts varied from 12,000 to 25,000 with 70 to 88 per cent polymorphonuclear leukocytes. A normocytic, normochromic anemia of 8.5 Gm. was present.

Seventy-two days after the onset of illness the patient was transferred to Walter Reed General Hospital. He appeared both acutely and chronically ill. Right-sided abdominal tenderness and acute pain to fist percussion over the right lower thorax were present. The liver was palpable 3 cm. below the right costal margin, but excursion of both diaphragms was normal. Liver function studies remained normal except for the alkaline phosphatase which rose to 75.0 King-Armstrong units (KAU). Protein electrophoresis showed a total protein of 6.3 Gm., α_1 11.3, α_2 21.2, β 11.9, γ 19.9 (per cent of total protein). Serial fresh stools were negative for parasites. A photoscan of the liver with gold^{198} disclosed a large defect in the right lobe. A presumptive diagnosis of amebic colitis complicated by hepatic abscess was made, and daily treatment with emetine and hydroxychloroquine was begun. Within 24 hours the patient was afebrile for the first time in over 2 months. He felt well within a month, and the filling defect in the liver could no longer be demonstrated by photoscan. The alkaline phosphatase had fallen to 19.6 KAU.

Case 3. A 32-year-old Caucasian man began to experience fever, malaise, and right costovertebral angle tenderness in January 1963. When admitted to an Army hospital in France 12 days later he had lost 10 pounds and appeared chronically ill. The temperature was 103°F, and mild tenderness was present in the right costovertebral angle. A white blood cell count was 22,050 with 82 per cent polymorphonuclear leukocytes. The hemoglobin was 11.3 Gm., and the corrected sedimentation rate was 32 mm. per hour. A urinalysis was unremarkable except for a trace of albumin. Total bilirubin was 0.6 mg.; alkaline phosphatase, 22 BU; SGOT, 92 units; SGPT, 156 units; prothrombin time, 63 per cent of control; cephalin flocculation, 4 plus; albumin, 2.1 Gm.; total protein, 6.5 Gm.; protein electrophoresis (per cent of total protein): albumin, 29.3; α_1 12.4; α_2 18.6; β 19.0; γ 20.7. Stools for ova, parasites, and enteric bacterial pathogens were negative. An intravenous pyelogram was normal. A chest X-ray film showed elevation and decreased excursion of the right leaf of the diaphragm with atelectasis in the right lower lobe. An exploratory operation was performed, and a large abscess in the right lobe of the liver was drained of 1,000 c.c. of "thick, bloody pus." This material and biopsies of the cavity wall failed to reveal amebae, and cultures were sterile. Fever, weight-loss, and anemia continued in spite of tetracycline therapy. The abscess cavity was reëxplored on February 23, and *Pseudomonas aeruginosa* was cultured. Administration of oral Chloromycetin® and erythromycin and irrigation of the abscess-cavity with neomycin were of no avail. On February 28 chloroquine was begun, and 5 days later the patient was afebrile. Chloroquine was discontinued after only 2 weeks, and 9 days later fever recurred and persisted in spite of the use of a variety of antibiotics.

The patient was transferred to Walter Reed General Hospital 95 days after his first symptoms developed. A hemagglutinin titer for *Entamoeba histolytica* was reported as 1:8,000 shortly before he was transferred. The patient was wasted and pale; he had lost 30 pounds since the onset of his illness. The temperature was 102.2°F. No movement of the right leaf of the diaphragm could be discerned, and there was mild right upper quadrant tenderness. Two drains protruded from a wound below the tenth rib in the posterior axillary line and contained a gelatinous, purulent, bloody drainage which grew out *Pseudomonas aeruginosa*.

Liver function studies were normal except for an alkaline phosphatase of 41.6 KAU. A hepatic scan using gold^{198} was normal. On May 10 a subhepatic abscess occupying the right posterolateral space was drained. Cultures grew out *Pseudomonas aeruginosa* sensitive to Coly-Mycin® and polymyxin B. Irrigation of the abscess-cavity with polymyxin was begun on May 13. Biopsies of the necrotic subcutaneous fat adjacent to the subhepatic abscess revealed trophozoites of *E. histolytica.* Two days after emetine and chloroquine were begun the patient became afebrile. Because a pulse rate of 132 per minute developed and the electrocardiogram showed minimal nonspecific ST-T wave abnormalities, the 10-day course of emetine was interrupted on the ninth day. Subsequently the tachycardia and the electrocardiogram reverted to normal and the patient remained afebrile and improved steadily. Complete healing of the subhepatic abscess occurred within 1 month.

Case 4. A 27-year-old Caucasian man was well until June 1963, when he noted dependent edema. The following morning cough and left-sided pleuritic chest pain developed. During the next 5 days periorbital and acral edema appeared and the cough became productive of small amounts of greenish sputum. Physical examination disclosed no abnormalities except for a 2-plus dependent edema and a temperature of 99.2°F. Shortly after a shaking chill the temperature rose to 103.4°F, and his cough became productive of bright red blood. A chest roentgenogram revealed a homogeneous density, 12 cm. in diameter, in the left midlung field. In spite of penicillin he failed to improve, and 2 days later a chest X-ray film showed that the density had increased about 50 per cent. Because a pyogenic lung abscess was suspected, penicillin was increased to 6 million units daily, and Chloromycetin and streptomycin were added. The fever diminished, but acute dyspnea and pleural effusion prompted his transfer to Walter Reed General Hospital.

Though afebrile he was gaunt, pale and dyspneic. There was evidence of a large left pleural effusion. The liver was palpable 3 fingerbreadths below the right costal margin but was nontender. Dependent edema was apparent up to the knees bilaterally. Liver function studies were normal except for an alkaline phosphatase of 35 KAU and 10 per cent retention of the BSP dye in 45 minutes. Electrophoresis of the serum proteins revealed a total protein of 6.0 Gm., an albumin of 2 Gm., and a gamma globulin of 1.7 Gm. The white blood cell count was 25,000 with 82 per cent neutrophils. A normocytic, normochromic anemia of 9 Gm. hemoglobin was present.

Thoracentesis yielded 2,200 c.c. of a reddish brown serous fluid which had the characteristics of an exudate. Smears and cultures for pyogenic and acid-fast organisms were negative. Amoebae were not seen. A diagnosis of pyogenic lung abscess with rupture into the left pleural space was entertained. Subsequent thoracenteses were unsuccessful in removing loculated fluid. A thoracotomy was performed which disclosed a multiloculated empyema and an abscess-cavity in the left lingula. Irrigation through the chest tubes yielded large quantities of a thick, reddish exudate. In spite of antibiotic therapy and adequate drainage deterioration continued during the next 3 weeks. One month after admission epigastric pain, tenderness, and increasing hepatomegaly developed. Photoscan of the liver with gold^{198} disclosed a 15 by 12 cm. filling defect in the superior portion of the right lobe. A hepatic amebic abscess with hematogenous spread to the left lung was considered likely, and emetine, chloroquine, and diiodohydroxyquin were started. Within 24 hours the patient became afebrile. Shortly thereafter his appetite and strength began to return, and the remainder of his hospitalization was characterized by progressive improvement. Minor transitory ST-T wave abnormalities and tachycardia were present during the last 5 days of therapy with emetine. Serial liver scans demonstrated disappearance of the abscess-cavity. Chest X-ray films confirmed progressive clearing of the parenchymal infiltrate but persistent pleural thickening. Differential spirometry disclosed no evidence of lung entrapment. The man was returned to duty 5 months after the onset of symptoms.

Discussion

Hepatic amebiasis simulates a variety of conditions.[1, 2, 3] Infectious hepatitis, acute cholecystitis, acute appendicitis, pyelonephritis, ruptured viscus, perinephric abscess, peritonitis, pyogenic lung and liver abscess, lymphoma, hepatic malignancy, and bacillary dysentery were the diagnostic possibilities considered in our patients. The usually described features of amebic liver abscess, such as hepatomegaly, right upper quadrant pain and tenderness, elevation and diminished excursion of the right leaf of the diaphragm, and a history of diarrhea, are not always present even when the abscess is large (case 4). When the diagnosis is delayed more than a few weeks, protracted fever, weight loss, debility and pallor are striking features.[2]

Definitive diagnosis is complicated by the fact that Amoebae are often not found in the stools nor detected in pus from the liver or lung abscesses.[4, 5] In only 1 of our patients was it possible to find the trophozoites in spite of biopsies of the involved tissue. In this instance several previous biopsies and smears of the necrotic débris had shown only nonspecific inflammatory changes.

Elevation in the serum alkaline phosphatase occurred in all 4 patients and was the only consistent abnormality in the liver function studies. Elevation in the serum globulins, BSP retention, and minimal hyperbilirubinemia were occasionally found. Our experience in this regard conforms well to that reported by Viranuvatti et al[6] in a large series of patients. In our cases 2 and 4 a photoscan of the liver with gold^{198} demonstrated a large filling defect. This filling defect and the presence of an elevated alkaline phosphatase suggested a liver abscess and prompted consideration of amebiasis.

Since it is often impossible to make a definitive diagnosis of amebic abscess, a trial of specific therapy is indicated. The response, after weeks of fever and progressive debility, is often dramatic and permits presumptive diagnosis. Three of our patients (cases 2, 3 and 4) were afebrile 36 hours after specific therapy had begun. In the fourth (case 1) fever gradually subsided in 7 days. All were able to leave the hospital within 1 month after becoming afebrile.

The last patient (case 4) is of special interest because of the predominance of left pulmonary involvement during his illness. Amebiasis most commonly involves the right lower lobe by direct extension of the hepatic inflammatory process.[5, 7] Abscesses from hematogenous dissemination occasionally occur in other parts of the right lung, but involvement of the left lung is exceedingly rare.[8, 9] Two similar cases have recently been reported, however, by Nunnaly and Cole.[10] Pyogenic lung abscess is usually diagnosed unless abdominal complaints are present and prompt consideration of a coëxisting hepatic amebic abscess. Isolation of the organism from the sputum has not been possible in most such cases, and the roentgenographic appearance is not distinctive. Sullivan[9] has therefore advocated that a trial of antiamebic therapy be considered prior to surgery in all cases of lung abscess not responding to broad-spectrum antibiotics.

Summary

Four cases of amebic abscess of the liver have been presented. One was complicated by an abscess of the left lung which apparently arose from hematogenous dissemination. The variability in the initial manifestations and the difficulties in diagnosis have been discussed. The importance of a therapeutic trial of emetine and chloroquine has been stressed.

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Erythema Nodosum with Bilateral Hilar Adenopathy

Report of Two Cases

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ERYTHEMA NODOSUM is a hyperallergic manifestation of a systemic disease. Its characteristic tender, red nodules, usually of the pretibial areas of the lower extremities, are not easily confused. In contrast, the underlying causes have been identified with more difficulty. Over 100 years elapsed following the original description before its association with tuberculosis became known.[1] At the present time etiologic factors include (1) bacterial disease—streptococcal infections, tuberculosis, leprosy; (2) viral disease—cat-scratch disease; (3) fungal infections—histoplasmosis and coccidioidomycosis; (4) drug sensitivity—sulfonamides, iodides, bromides, and (5) miscellaneous conditions—ulcerative colitis, regional ileitis. Sarcoidosis represents one of the more recent additions to this list.

Hilar adenopathy has been considered to be part of the erythema nodosum complex.[2, 3, 4] King[5] first noted that the bilateral hilar adenopathy which occasionally occurred with it may be indistinguishable from that seen in sarcoidosis. More recently, large series have been reported which strongly suggest that the hilar adenopathy and erythema nodosum actually represent manifestations of sarcoidosis.[6-9] Most of these observations have been made in Scandinavia and Britain, and only recently has this association gained support in this country.[10]

Since 1952 15 patients have been hospitalized for erythema nodosum at this hospital. The underlying disease and the status of the hilar adenopathy are recorded in table 1. Only in the last 2 cases with associated hilar adenopathy has there been an attempt by tissue biopsy to discover sarcoid. These will be briefly presented.

Report of Cases

Case 1. This 26-year-old Caucasian woman had a 5-week history of migratory arthralgias of the shoulders, knees, wrists, and ankles. Daily fever of 99° to 100°F was documented. Bilateral hilar adenopathy without parenchymal infiltrate was present on chest roentgenogram. The day prior to admission, tender, red nodules appeared over both pretibial skin surfaces. Erythema nodosum of the pretibial areas, pain, tenderness, limited movement, and slight effusion of both ankle joints were present. The sedimentation rate was 45 mm. per hour, and a PPD no. 2 skin test was positive. Histoplasmin and coccidioidin skin tests were negative. Liver function studies were normal, but liver biopsy disclosed an epithelial granuloma. Special stains failed to reveal acid-fast or fungal organisms. After 2 weeks of modified bedrest, symptoms subsided spontaneously, and 2 months later there was only mild bilateral hilar adenopathy.

TABLE 1: Underlying Disease and Status of Hilar Adenopathy in 15 Cases of Erythema Nodosum

	No. of Patients
I. Without bilateral hilar adenopathy:	
A. Regional ileitis	1
B. Ulcerative colitis	2
C. Recurrent streptococcal infection	1
D. Unknown	5
E. Sarcoid	1
II. With bilateral hilar adenopathy (no recognized underlying disease)	5
Total	15

Case 2. A 42-year-old Caucasian woman was admitted to the hospital after a 3-week history of progressive pain and swelling of both ankles. The skin

over the ankles had a mottled blue-red color. Both ankles were tender and mildly swollen and had limited dorsal flexion. On the left lower pretibial area there was a 2 cm. red tender nodule. A chest X-ray film disclosed bilateral hilar adenopathy. The sedimentation rate was 44 mm. per hour, and the histoplasmin and PPD no. 2 skin tests were positive. Biopsy of the pretibial lesion revealed erythema nodosum, and the liver biopsy demonstrated nonspecific epithelial granuloma. There was gradual resolution of the ankle arthritis and the skin lesion over the next month, and the sedimentation rate fell to normal. The bilateral hilar adenopathy disappeared over the next 4 months.

Discussion

Of the 212 cases of bilateral hilar adenopathy reviewed by Löfgren[6] in 1953, 113 patients had erythema nodosum. It was most commonly seen in young women. Sarcoidosis was histologically demonstrated in 50 per cent of his cases when subjected to a biopsy procedure. Geraint-James[7] more recently reviewed 170 patients with erythema nodosum and observed hilar adenopathy in 137. A positive Kveim skin test was present in 107 of the 152 so tested. In both of these series parenchymal pulmonary lesions were uncommon, and the hilar adenopathy was transitory. These and subsequent observations indicate that sarcoidosis which presents itself as erythema nodosum with bilateral hilar adenopathy is almost invariably benign. Follow-up chest roentgenograms were available in 4 of our patients, and the hilar adenopathy had regressed within 6 months.

The finding of noncaseating granulomata in the liver does not establish the diagnosis of sarcoid. It must be correlated with the clinical features. In early sarcoidosis the absence of systemic and respiratory symptoms and the incidental discovery of bilateral hilar adenopathy on chest roentgenogram are common. However, the diagnostic considerations are even more limited when erythema nodosum occurs in such a patient. Although erythema nodosum and/or epithelial granulomata of the liver can occur with tuberculosis, histoplasmosis, coccidioidomycosis and brucellosis, bilateral hilar adenopathy is exceptional. The clinical course, skin tests, and serologic studies aid further in the differential diagnosis.

Articular manifestations were noted in 89 per cent and 70 per cent of Löfgren's and James' series, respectively. The large joints are chiefly involved. The joint involvement and constitutional symptoms may precede the skin lesions by 1 to 4 weeks (case 1). Chronic arthritis or errosive joint changes do not occur.[11, 12] This hyperallergic reaction must be differentiated from the uncommon but more florid and chronic form of arthritis resulting from the granulomatous synovitis of sarcoid.

Summary

Bilateral hilar adenopathy was noted in 5 of 15 patients with erythema nodosum. Liver biopsy was obtained in 2 patients in an effort to determine the etiology of the adenopathy. Epithelial granulomata were discovered. Respiratory symptoms or signs were absent, and the hilar adenopathy rapidly subsided. Evidence to date indicates that the erythema nodosum complex with hilar adenopathy is a benign form of sarcoidosis.

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Chronic Effusive Pericarditis

Report of Two Cases

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CHRONIC PERICARDIAL EFFUSION is uncommon. Tuberculosis, lupus erythematosus, malignant disease, myxedema, severe anemia, scleredema, endomyocardial fibrosis, inactive rheumatic heart disease, polycythemia, and mediastinal radiation have been implicated, but in many cases a specific etiology has not been established.[1] In the idiopathic variety the course is variable, some patients remaining asymptomatic for many years, others developing progressive cardiac tamponade or constrictive pericarditis. Pericardiectomy or the creation of a pericardial window has been successfully used in the treatment of individual cases, but the indications for such procedures have not been clearly defined. This report concerns 2 cases of chronic, idiopathic pericardial effusion.

Report of Cases

Case 1. A 39-year-old Caucasian man was asymptomatic in 1955 when a routine chest X-ray film disclosed apparent cardiomegaly. During the next 4 years chest X-ray films continued to show a large cardiac silhouette, but he remained asymptomatic and repeated examinations disclosed no other abnormalities. In 1959 mild exertional dyspnea, productive cough, and minimal dependent edema prompted hospitalization.

Physical examination revealed an obese man who appeared to be in good general health. The blood pressure was 130/85, without a paradoxical pulse. Venous pressure and circulation time were normal. The point of maximal impulse was not palpable. Cardiac dullness was percussed to the left posterior axillary line and 4 cm. to the right of the sternum. Auscultation disclosed no abnormalities. Peripheral pulses were normal. Neither hepatomegaly nor ascites was present. A chest roentgenogram revealed a greatly enlarged, globular cardiac silhouette and a large, calcified, right peritracheal lymph node (figure 1). Cardiac fluoroscopy disclosed greatly diminished pulsations. Intermediate strength tuberculin and histoplasmin skin tests were 2+ and 3+, respectively. Coccidioidin and blastomycin skin tests were negative. A complement fixation test for histoplasmosis was positive in a 1:64 dilution. A protein electrophoresis was reported as follows: total protein, 7.0 Gm.; albumin, 38.5; α_1 6.0; α_2 9.9: β, 18.6; and γ, 27.0. The following were normal or negative: electrocardiogram, complete blood count, sedimentation rate, urinalysis, blood urea nitrogen, creatinine, 3 blood cultures, complement fixation test for nucleoprotein antibody, LE cell preparations, latex and bentonite tests for rheumatoid factor, uric acid, blood glucose, SGOT, serologic test for syphilis, and cultures of sputum and gastric aspirates for *M. tuberculosis.*

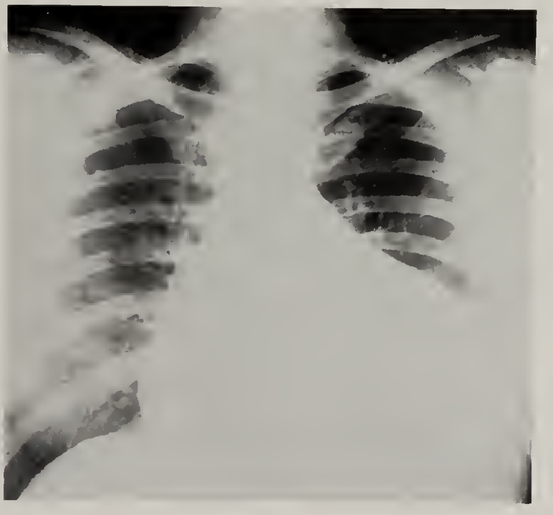

FIG. 1. Case 1. Progressive cardiac enlargement for 4 years. Patient asymptomatic at time of this X-ray film.

A chronic pericardial effusion was suspected, and pericardicentesis was performed. After 1,200 c.c. of a serous exudate was removed, 120 c.c. of air was introduced into the pericardial cavity. Subsequent chest X-ray films demonstrated a smooth, thin pericardium and a normal-sized heart (figure 2). Tuberculous pericarditis was considered likely, and INH, PAS, and streptomycin were begun. One month later a thoracotomy was performed, and 1,000 c.c. of a brownish, serous fluid was removed from the pericardial sac. The pericardium was thin, but several discrete 1 to 3 mm. nodules were scattered over the parietal surface. Two 1 cm. biopsies were taken, and the pericardium was closed. Concentrates of the pericardial fluid did not contain acid-fast organisms, fungi, or malignant cells. Microscopic sections of the pericardium disclosed only increased fibrous tissue and a moderate, round-cell infiltrate. Granulomata were not seen, and special stains for acid-fast and fungal organisms were not revealing. Subsequently, cultures and guinea-pig inoculations were reported as negative. Antituberculosis therapy was therefore discontinued. Roentgenograms during the next 2 months demonstrated a normal-sized cardiac silhouette (figure 3). The patient has remained well and the cardiac size unchanged over the succeeding 5 years.

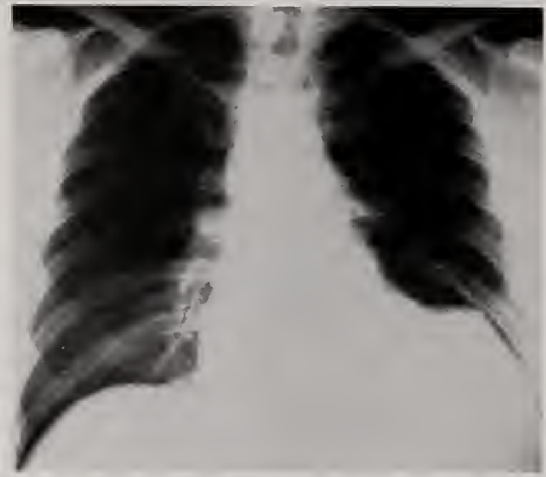

FIG. 2. Case 1. After pericardicentesis and instillation of air, showing thin pericardium and normal-sized heart.

Case 2. A 40-year-old Caucasian woman was asymptomatic in 1954 when a chest roentgenogram showed cardiomegaly. In 1959 mild dyspnea on exertion developed and she began to experience recurrent episodes of "blacking out" accompanied by numbness. By early 1963 she began to sleep on 2 pillows because it seemed to relieve dyspnea. Mild swelling of the face, hands, and feet was also said to be present. There was no history of rheumatic fever, exposure to tuberculosis, cough, night sweats, or fever. A cardiac murmur had not been heard.

On February 22, 1963 a physical examination revealed a slightly obese woman who appeared restless and anxious but otherwise well. The thyroid was 2 to 3 times normal size, but a bruit was not heard. The neck veins were not distended. The point of maximal cardiac impulse was not palpable, but the apex was percussed 3 cm. beyond the midclavicular line in the fifth intercostal space. No murmurs, rubs, or extra sounds were heard. The liver was not enlarged, and ascites was absent. Edema was not present. An intermediate strength PPD was positive, but skin tests and complement fixation tests for systemic fungi were negative. The following additional studies were normal or negative: complete blood count, sedimentation rate, urinalysis, serum cholesterol, total serum lipids, serum glucose, creatinine clearance, serum protein electrophoresis, serologic test for syphilis, bilirubin, bromsulfalein, alkaline phosphatase, ASO titer, skull films, electroencephalogram, serum electrolytes (Na, K, CO_2, Cl, Ca, PO_4), and an I^{131} uptake. Chest roentgenograms disclosed generalized cardiomegaly and prominence of the left ventricle segment. The cardiothoracic ratio was 7¼ to 11½ inches. A cardiac scan using I^{131}-labeled albumin showed a normal-sized cardiac cavity.

On the eighth hospital day a pericardicentesis was performed. Two hundred c.c. of a clear, serous transudate was removed and air was instilled. Subsequent chest X-ray films demonstrated a thin pericardium and a normal-sized heart. Examination of concentrates of the pericardial fluid did not reveal acid-fast organisms, fungi, or malignant cells. Cultures and guinea-pig inoculations of the pericardial fluid were subsequently reported as negative. Over the next 3 weeks the remaining pericardial fluid drained into the left pleural space, and the size and shape of the cardiac silhouette became normal. Reëvaluation 3 months later revealed a normal-sized heart without evidence of constriction. The patient's persistent symptoms were thought to be on a psychogenic basis.

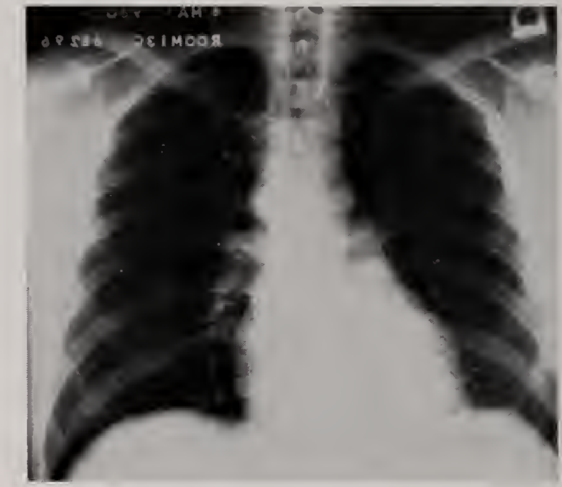

FIG. 3. Case 1. Three months following pericardial biopsy and drainage, showing normal-sized heart.

Discussion

A specific etiology cannot be established in a majority of patients having a chronic pericardial effusion. In the group of patients reported by Steinberg et al,[2] for example, the following diagnoses were made: tuberculous pericarditis, rheumatic fever, myxedema, metastatic malignancy, lupus erythematosus, and radiation fibrosis. No diagnosis could be established, however, in 17 of the 30 cases. In the reported idiopathic cases the pericardial fluid has varied from a serous transudate to a hemorrhagic exudate.[3] Microscopic examination of the pericardium, as in our case 1, has usually disclosed only increased fibrous tissue and a round-cell infiltrate. Rarely foreign body giant cells have been noted.[3] In an occasional case no abnormalities of the pericardium have been detected.[4]

Winters and Soloff[1] have concluded that pericardial effusion persists in many of these cases because the resorptive capacity of the pericardium has been diminished by a previous inapparent insult. A preceding viral pericarditis has been suspected, but a compatible history is rarely obtained and attempts to isolate a virus have been unsuccessful. Contro et al[5] and Soulié et al,[6] who reported cases in young children, suggested the possible existence of a congenital abnormality in pericardial lymphatics. The presence of a strongly positive histoplasmin skin test and a calcified right peritracheal node in our case 1 is of interest because acute and constrictive pericarditis may be caused by *H. capsulatum*.[7, 8] A chronic effusion in the absence of active pericarditis has not been reported, however, and in our cases cultures and special stains of the pericardial biopsies were negative.

The cases reported with idiopathic effusions do not form a homogeneous group. The symptoms, signs, and clinical course have been quite variable. Scheuer[9] reviewed the American literature and summarized the data in 19 patients with idiopathic pericardial effusions lasting from several months to as long as 8 years. Males predominated in a ratio of 14:5, and a wide age range was present. Dyspnea and signs of pericardial congestion were present in all but 3 patients, and fever and precordial pain were common. Atrial fibrillation was present in 5, and 6 had cardiomegaly in addition to the pericardial effusion. Electrocardiograms revealed nonspecific ST- and T-wave changes. Fourteen patients required partial or complete pericardiectomy, and in 5 of these constrictive pericarditis had developed. Schwartz et al[10] and Storey et al[3] have since reported additional patients with chronic pericardial effusion in whom the development of tamponade necessitated surgical correction.

By way of contrast, in 3 of the cases summarized by Scheuer[9] and in those reported by Contro et al,[5] Connolly et al,[4] and Soulié et al,[6] as well as in our 2 cases a large pericardial effusion persisted for years without the development of tamponade and indeed unattended by any symptoms beyond mild dyspnea. Fever, cardiomegaly, and atrial fibrillation were not present.

The presence of a chronic pericardial effusion should be suspected whenever a patient has an enlarged cardiac silhouette without an evident cause. The clinical, roentgenographic, and fluoroscopic findings most clearly resemble those seen in primary myocardial disease. Electrocardiography may be of some aid in differentiating the 2 since the presence of low voltage and either partial[11] or complete[12] electrical alternans favor pericardial effusion. The presence of an effusion can be confirmed by demonstrating the true size of the cardiac cavity with I^{131}-labeled albumin,[13] angiocardiography,[2] or intravenous carbon dioxide.[14] Cinefluorography with the image intensifier to demonstrate the location of the epicardial fat layer may also permit diagnosis.[15, 16]

Treatment must be individualized. In an occasional patient the effusion may not recur after pericardicentesis (as in our case 2). If the effusion does persist in spite of repeated pericardicentesis, surgical treatment is indicated even in the asymptomatic patient in order to obtain tissue for diagnosis and to obviate potential complications such as tamponade, constriction, and atelectasis. Either creation of a pericardial window or partial pericardiectomy has been corrective in the majority of patients. However, as Scheuer[9] and Storey[3] have stated, creation of a window will presumably not prevent the development of constrictive pericarditis and is therefore a less satisfactory procedure, particularly if the pericardium is greatly thickened or active pericarditis is present. A long-term evaluation of patients having only a pericardial window has not been reported.

Summary

Two cases of chronic idiopathic asymptomatic pericardial effusion of 4 and 9 years' duration have been reported. The clinical features, differential diagnosis, and treatment of this uncommon disorder have been briefly discussed. The diagnosis should be considered in any patient with an enlarged cardiac silhouette whether or not there is evidence of cardiac tamponade. Partial or complete pericardiectomy is curative and should be considered early to obviate possible tamponade and/or constriction.

(*Continued on page 249*)

Fatal Intramyocardial Injection of Contrast Material Complicating Selective Angiocardiography

Report of a Case

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SELECTIVE ANGIOCARDIOGRAPHY by catheter injection has become a widely accepted diagnostic procedure since its introduction by Jönsson and co-workers.[1] Several reports of complications have appeared in the literature.[2-11]

It is our purpose to report the fatal intramyocardial injection of contrast material complicating angiocardiography in a 13-day-old infant. Of particular interest is the fact that massive extravasation of contrast material occurred without autopsy evidence of endocardial tear or perforation by the catheter. It appears that the intramural injection resulted from trapping the catheter tip in a pocket between trabeculae carneae during ventricular systole.

Report of Case

R.C., a 4-day-old white male infant, was admitted to Walter Reed General Hospital because of cyanosis and respiratory distress. Clinical, radiographic, and electrocardiographic findings suggested the diagnosis of complete transposition of the great vessels with congestive heart failure. Because the child remained critically ill despite digitalization and other supportive measures, angiocardiography was undertaken at the age of 13 days.

The infant received basal anesthesia consisting of morphine sulfate and pentobarbital, and continuous oxygen by mask. A no. 5 NIH catheter was introduced via the right saphenous vein and was manipulated into the anteriorly placed ventricle where the pressure was 95/10 mm. Hg. The pressure curve at this location was excellent with no damping, and the rhythm was sinus. The patient was then moved to the Schonander biplane rapid film-changer—a distance of approximately 4 feet from the fluoroscopy table. A test dose of 50 per cent sodium diatrizoate (Hypaque®) was injected, and scout films were obtained as a final check on catheter position. The scout films revealed the catheter tip to be well anterior and the test dose of contrast material in the free ventricular cavity. The catheter was then connected to the Gidlund pressure injector and 10 ml. of 50 per cent sodium diatrizoate was injected under 10 Kg./cm.^{2} pressure while biplane films were obtained at the rate of 5/sec. for 2 seconds, 3/sec. for 2 seconds, and 1½/sec. for the remainder of the 25 programmed films. Immediately following the injection of contrast material the patient developed tachycardia, and the respiratory rate increased to 60/min. Both of these findings were transient and subsided within a short time. Unfortunately, due to transient equipment failure, no electrocardiographic monitoring was obtained during the injection.

The patient's vital signs remained stable thereafter, and the catheter was repeatedly flushed while awaiting development of the films. As the films were being developed the infant suddenly stopped breathing and cardiac action ceased. The catheter was withdrawn into the inferior vena cava, and resuscitation was carried out by mask ventilation and external cardiac compression. The electrocardiogram at this time revealed only occasional idioventricular beats. Despite the administration of epinephrine, isoproterenol and calcium chloride and despite the return of spontaneous respirations, cardiac rhythm could not be reëstablished and resuscitative efforts were discontinued 55 minutes after the cardiac arrest.

The angiocardiogram confirmed the clinical impression of transposition of the great vessels; the aorta originated from the anterior ventricle, and the only communication between the 2 circulations was a large patent ductus arteriosus. No ventricular or atrial septal defects were demonstrated. The cause of the catastrophe was also clearly evident from the X-ray films. The catheter was visualized in a slightly more anterior position than on the scout films, and a dense collection of contrast material measuring approximately 3 by 4 cm. was noted within the anterior wall of the right ventricle. The contrast material produced an anterior bulge in the ventricular wall which persisted throughout the angiocardiogram after the remainder had been cleared from the heart. No radiopaque material was seen in the pericardium (figure 1).

Autopsy was limited to the heart. The pericardial sac was distended and contained 35 ml. of serosanguineous fluid. A subepicardial hematoma measuring 4 by 5 cm. involved approximately two-thirds of the anterior wall of the right ventricle. Underlying the hematoma the external surface of the myocardium was very hemorrhagic. On the endocardial surface a 3 by 4 cm. hemorrhagic area surrounded an intertrabecular endocardial pocket. No endocardial tear or perforation was found. Microscopic sections of the area of the hematoma revealed areas of myocardial destruction involving the full thickness of the ventricular wall with multiple paths of fresh blood dissecting between myocardial fibers. The aorta arose from the right ventricle anterior to the pulmonary artery, confirming the diagnosis of transposition.

Discussion

Reported fatalities associated with cardiac catheterization and angiocardiography have been variously ascribed to anesthetic accidents, arrhythmias, perforation of the heart, sensitivity to the injected material, and intramyocardial injection of the contrast agent.[2-5, 9]

Intramyocardial injection of contrast material is a complication unique to selective angiocardiography and has been observed with variable but apparently increasing frequency.[5-11] Bagger et al[2] in reviewing the combined experience of 12 Swedish hospitals, reported only 4 instances in a series of 1,375 angiocardiograms with no late sequelae. Similarly, Davidsen et al[6] reported 1 case of intramyocardial injection of contrast material in a series of 500 selective angiocardiograms, again with no ill effects to the patient.

On the other hand, Hilbish and Herdt,[7] in reviewing their experience with 250 selective angiocardiograms, stated that extravasation of contrast material in the myocardium occurred as a "radiological complication" in approximately 6 per cent of patients studied. However, only 1 patient developed a "clinical complication" in the form of cardiac tamponade. Similarly, Bookstein and Sigmann[11] observed 13 intramural injections in reviewing 248 selective angiocardiograms, an incidence of approximately 5 per cent. Only 2 of the 13 patients developed clinical manifestations, with 1 death due to cardiac tamponade in a 3-week-old infant. The 2 patients reported by Pocock[5] and Escher[10] both developed large pericardial effusions and cardiac tamponade following intramyocardial injections during right ventricular angiocardiography. Pericardiocentesis and pericardiotomy were required, but both patients survived. Recently Straube et al[9] reported the case of a 6-year-old male with tetralogy of Fallot who died following massive extravasation of contrast material in the interventricular septum during selective angiocardiography.

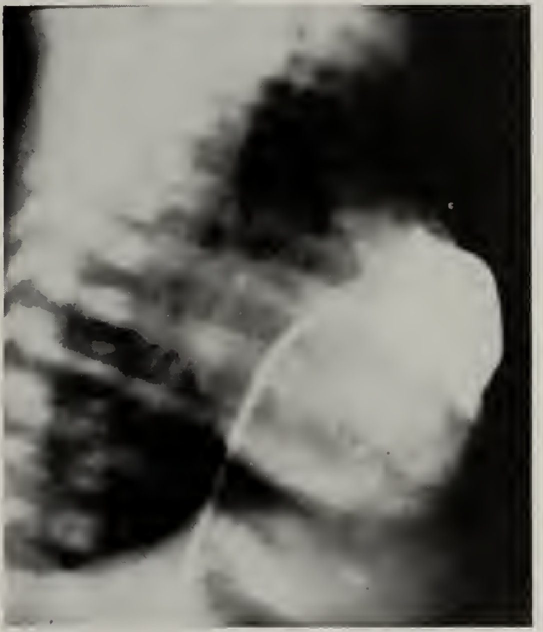

FIG. 1. Late angiocardiographic film, lateral projection. Most of contrast material has been cleared from heart. Note dense, encapsulated collection of contrast material in anterior wall of right ventricle. There is no contrast material in pericardium.

This complication has been reported to occur with the use of both side-hole and end-hole catheters.[9, 11] The inherent technical advantages of the NIH catheter are well known. However, it has been recognized widely that its rigid occluded end may easily penetrate the myocardium while the proximal side holes allow pressure curves and blood sampling to remain unchanged.[8-12] Scout films in 2 planes and preliminary hand injection of saline have been advocated to insure the freedom of the catheter tip. It seems preferable to hand inject a test dose of contrast material simultaneously with exposure of the scout films. This has the advantage of visualizing better the catheter tip and any intramural extravasation present —a situation not obtainable with saline.

In this case all the above precautions were observed and it was the opinion of the operator that the catheter tip was free. Despite careful examination at autopsy, no endocardial tear was found. It is, therefore, concluded that cardiac perforation by the catheter did not occur, but that the catheter tip became trapped in the endocardial pocket, between trabeculae carneae. This is supported by the initial X-ray film (figure 2) which shows contrast material jetting back along the catheter as if the tip were in a confined space. It seems probable that ventricular contraction brought the myocardium in close apposition to the catheter side holes at the time of the pressure injection with resulting extravasation of the contrast material.

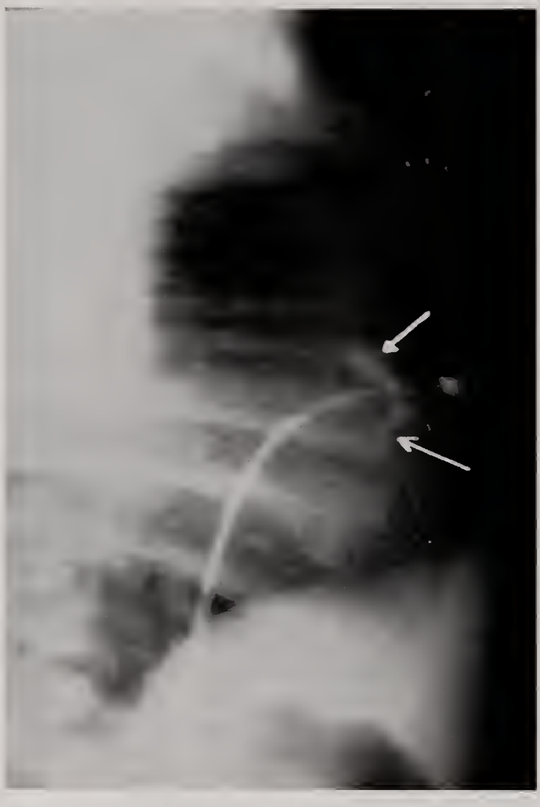

FIG. 2. Early angiocardiographic film, lateral projection. Catheter tip is in extreme anterior position in endocardial pocket described. Note contrast material (arrows) directed posteriorly and at 45° angle to catheter, as if catheter tip were in a confined space.

On the preliminary scout films the catheter tip did not appear to be located as far anteriorly as the first angiocardiogram indicates (figure 2). We must conclude therefore that despite securing the catheter to the saphenous vein a minor movement by the patient advanced the tip in an intertrabecular pocket without the operator's recognition. Catheter trapping between trabeculae carneae has been postulated by others.[5]

In many other reported cases the catheter also passed through the inferior vena cava, along a relatively straight course, impinging on the anterior wall of the outflow tract of the right ventricle. This area and the apex of the right ventricle seem particularly prone to extravasation of contrast material.[5, 10, 11] Furthermore, it has been suggested that the straight course of the catheter imparts "spear"-like characteristics and increases the likelihood of myocardial perforation since the application of minor force on the end of the catheter is transmitted directly to the tip.[12] Pressure injection through the catheter increases rigidity and would enhance this effect. In addition, the placement of the catheter anteriorly in the right ventricular outflow tract increases the likelihood of the tip entering an intertrabecular pocket since such pockets occur with particular frequency in this location.[13] We therefore attempt to place the catheter tip just within the tricuspid valve, avoiding impingement on the anterior wall. Positioning of the catheter deep in the apex of the right ventricle is avoided for similar reasons.[8] The risk of this complication might be reduced if the injection were electrically triggered by the ECG so as to start in diastole. Such a timing device is now used on cineangiocardiograms performed in our cardiac catheterization laboratory.

Cardiac arrest in all probability resulted from the extensive myocardial destruction secondary to the extravasation of contrast material in this cyanotic and critically ill infant.

The pericardial effusion noted at necropsy probably resulted from prolonged and vigorous external cardiac compression. However, it should be remembered that if cardiac tamponade is a potential cause of cardiac arrest external compression will be futile and should be abandoned in favor of open chest direct massage. This would relieve tamponade and afford an opportunity to repair a perforation of the myocardium.

Summary and Conclusions

Fatal intramyocardial injection of contrast material during right ventricular angiocardiography in a 13-day-old infant with transposition of the great vessels is reported. The etiologic factors of this complication are briefly discussed. Suggested precautions are:

1. Positioning of the catheter tip just within the tricuspid valve.

(*Continued on page 250*)

Preinfarction Angina

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THE INTERMEDIATE CORONARY SYNDROME,[1] acute coronary insufficiency,[2] the "slight coronary," coronary failure,[3] impending infarction,[4] preinfarction angina,[5] and other names are used to describe a disease state "in-between" angina pectoris and frank myocardial infarction. Although our attention is directed to a few vessels (the coronary arteries) affected with a particular disease (atherosclerosis) at a particular time in the natural history of that disease, there remains considerable confusion both in terminology and concept.

As the clinical manifestations of coronary thrombosis and myocardial infarction became well known, it became apparent that a number of patients (perhaps 30 per cent) with infarction had had some premonitory symptoms for hours or days or even weeks before the infarction. It follows that if these premonitory symptoms could be recognized, it might be possible to prevent the infarction by reducing cardiac work or increasing coronary flow. Angina pectoris in a previously asymptomatic patient or a worsening of preexisting angina are the most reliable warnings of impending infarction. There is little difficulty in recognizing classical angina pectoris. Also, it is usually not difficult to recognize coronary thrombosis with its more severe unrelenting constricting substernal pain not relieved fully by rest and often associated with electrocardiographic and enzyme evidences of myocardial infarction. Difficulty arises in the diagnosis of the "in-between" syndromes which have been listed above. Note that these titles blend the "in-between" with the "about-to-happen" syndrome.

None of these descriptive names is without fault. Acute coronary insufficiency is a physiologic term which could apply equally to angina pectoris or myocardial infarction. Master[2] applied this term to a group of patients with myocardial infarction often associated with valvular stenosis, anemia, or pulmonary embolism but without fresh occlusions of a coronary artery. The term is more widely used to describe the patient with prolonged angina but without clinical, laboratory, or electrocardiographic evidences of myocardial necrosis. Friedberg[6] has pointed out the temptation to believe that by the use of this euphonious name we have defined the nature of the patient's disturbance. It is difficult but more rewarding to make an exact clinical pathologic diagnosis based on the clinical history, repeated careful physical examination, serial electrocardiograms and laboratory studies including the blood count, sedimentation rate, and transaminase tests.

Certain concepts of the pathophysiology of angina and of infarction must be appreciated. The major cause is atherosclerosis of the coronary arteries. The concept of supply versus demand is a basic one. Exertion, emotional upsets, and muscle hypertrophy increase the demand, while the supply is decreased by progressive narrowing of sclerotic vessels. Complicating factors such as anemia from an unrecognized gastrointestinal hemorrhage are often operative. There is an inadequate supply of blood to a given area which may be partial or complete, transient or permanent.

Although the exact cause of the pain is unknown, it is probably related to the accumulation of metabolic products of anaerobic carbohydrate metabolism. It is known that the great majority of patients with angina pectoris have gross obstruction of more than one and usually several areas of the main branches of the coronary arteries. Although the electrocardiogram has been of great value in confirming the impression of angina, false positive or false negative information may be obtained and the diagnosis remain primarily clinical.

Angina pectoris of effort is not the only type of angina. Smith[7] has recently discussed episodic, postural, and linked angina. The first is chest pain compatible with angina which recurs over weeks or years without relation to exertion, culminating eventually in infarction. The postural variety is often precipitated by stooping and may be mediated by blood pressure change. If noted at night, it may be related to incipient failure, ostial stenosis, or to dreams. Linked angina is more difficult to recognize. It occurs in patients suffering also from cervical osteoarthritis, hiatal hernia, gallbladder disease, or pulmonary embolism. One triggers the other, and both syndromes blend. Each must be recognized and treated. The discovery of a hiatal hernia in a patient with suspected coronary artery disease thus compounds the problem of diagnosis. Myocardial infarction is usually but not always associated with coronary occlusion. The occlusion usually results from a fresh thrombosis at or near a sclerotic plaque. Subintimal hemorrhages can be found in as many as 80 per cent of thrombosed vessels, but their significance is not understood. At postmortem examination many old and new coronary occlusions are seen without resultant myocardial infarction. Not infrequently small diffuse and occasionally large areas of fibrosis which presumably represent prior infarctions are present in patients who clinically had "only angina."

Just what are the pathophysiologic events which have occurred in the patients with new angina, a distinct worsening of existing angina, or with prolonged anginal pain new or old? Resnik[5] studied a group of patients with this problem. There was no shock, failure, leukocytosis, or more than minimal and only occasional electrocardiographic findings. Enzymes and serial electrocardiograms were obtained for 2 weeks, during which time the patient remained in the hospital with restricted ambulation. If 40 is accepted as the upper limit of normal, about 75 per cent of the 31 patients developed an abnormal rise in the serum glutamic transaminase between the fourth and tenth days. If 28 is accepted as the upper limit of normal, or if any rise of more than 10 units is considered abnormal, over 90 per cent of the 31 patients demonstrated an abnormality between the fourth and tenth days. Delay in the enzyme rise was thought to be related to the borderline blood supply to the ischemic area. The blood supply to an area is barely adequate, while the adjacent area finds the supply inadequate and eventually dies, releasing the enzyme to the circulation. These observations support the concept that new angina, a worsening of existing angina, or prolonged anginal pain is regularly associated with some myocardial death.

What of the management of patients with coronary artery disease short of frank myocardial infarction? The patient with new angina on effort deserves immediate and severe restriction of his activities either at home or in the hospital. Sudden worsening of preëxisting angina should be similarly treated. The patient with coronary artery disease without angina or with stable angina who has had prolonged "anginal" pain should be similarly restricted. Each of these patients, in the opinion of most, should be anticoagulated with heparin or a prothrombin depressant. Ideally, restriction of activities and anticoagulation are accomplished in the hospital. There the serial enzyme studies, sedimentation rate, and electrocardiograms can be obtained more readily. It will soon become apparent that some of these patients have suffered a frank transmural or nontransmural infarction. The remainder should be observed for at least 3 to 5 days. If these studies remain normal, it is conventional to conclude that "nothing happened."

Serial observations over a longer period would demonstrate infarction in an additional number of patients. What then is the logic of 3 to 5 days of observation? Most transmural and large nontransmural infarctions will be apparent by electrocardiograms and diagnostic enzyme changes within 5 days. It is the small nontransmural infarction that may be missed with brief observation. Nevertheless, every patient with chest pain cannot be restricted for 14 days. Clinical history and our judgment of the particular incident must guide our management. If a careful history is merely compatible with a new insult to the coronary circulation, restricted activity for only a few days is sufficient in the interests of avoiding iatrogenic disease. In contrast, if the history very strongly suggests a new insult to the coronary circulation, then the history dictates the management even in the absence of confirmatory electrocardiographic or enzyme findings. Coronary occlusion with some degree of myocardial necrosis is presumed to be present. The patient should be anticoagulated and put to bed rest for 2 weeks.

Summary

All ischemic heart disease should be considered a spectrum of increasing severity from angina of effort to frank myocardial infarction. In a high percentage of patients with new angina, a change in existing angina, or with prolonged anginal pain new or old, coronary occlusion has occurred. Evidence of myocardial necrosis can be obtained with prolonged serial observations

(*Continued on page 250*)

PRESIDENT'S PAGE

FUTURE MEETINGS—A TRIAL PROPOSAL

Everyone must be tired of hearing that there has been a fragmentation of our Medical Society into numerous smaller groups and societies. I think this may have resulted from the demands of hospital staff duties combined with the social appeal of a small group meeting for dinner and a program. It is my belief, however, that the Medical Society still has a place in postgraduate education, not only to fulfill the requirements of our Charter, given to us by Congress, but to offer continuing education to those doctors who are not members of its Sections and/or of any hospital staff.

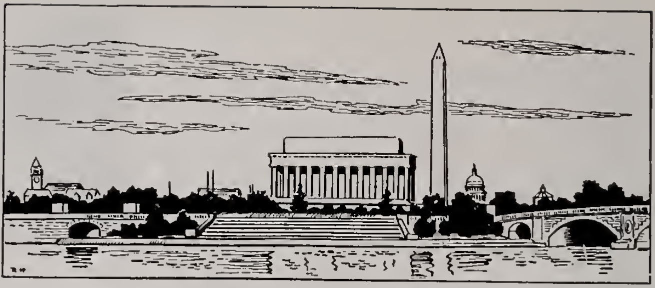
Washington is unique, I believe, in that the number of Sections, academies, medical clubs and small societies total over 40. As a member and ex-member of several of these small groups I know that the scientific caliber of papers delivered is generally excellent and frequently outstanding. Undoubtedly, it is good training for younger men to prepare and read papers before such groups. I have no intention of advocating a change, but I cannot help wondering if the caliber of papers and the value of this training would not be greater if given before a larger audience, such as the parent Society. Since the dinner meeting, undoubtedly, is a major factor in the success of the smaller societies, it has been proposed that our new Medical Society building be equipped with kitchen facilities suitable for the catering of dinners. We have been assured by experts in the field that dinners comparable to any at the hotels could be served.

The various Sections of the Medical Society should have the responsibility, as they do in the AMA, of contributing to the postgraduate programs of the Society. The tremendous success of the programs put on at the last Annual Scientific Assembly by the Section on Internal Medicine and the Section on Pediatrics attests to the ability of the Sections to do this. Therefore, as a trial, when we have settled down in our new building, I would like to propose that monthly scientific meetings be held, sponsored in turn by the various Sections; that these meetings be dinner meetings; and that they be open to any member of the Society willing to pay for his dinner. The responsibility for the program would not recur for any Section before 2 or 3 years, especially if any of the smaller societies cared to participate in the endeavor.

Many members have expressed a desire for the Society to be "given back to the membership." What this means I am not quite sure, but those of you who have read my previous pages know that a sincere effort is being made, through reorganization of committee structure, with liaison directly with the Executive Board, to accomplish this purpose. I believe sincerely that by resumption of meetings of some type in our new Medical Society building we would get to know each other better and we could exchange opinions on our own Medical Society problems as well as on national socioeconomic problems. My proposal is not for more meetings per se—certainly we have enough at present—but for wider participation by our members.

There are also a great many physicians employed in Federal health agencies and on the staffs of military hospitals in this area who have very little contact with the private practice of medicine. Many have come from it and some will return to it. We should offer them an opportunity for closer association with organized medicine and also a "home" where they might feel welcome at all times.

Edward W. Nicklas



EDITORIALS

Please—No More Lollipops

A FUNNY THING happened to me while I was sitting waiting my turn in my physician's office the other day. For a minute I thought I was daydreaming through a repeat performance of the action. In fact, I was, because the same scene I was now watching had only a few weeks before caused my subconscious to rebel and to file away a sharp protest, ready to fire, at the perpetrators of the lollipopmania that for some unaccountable reason seems to grip so many in the medical field.

As a dentist who is in charge of Public Relations or Dental Education, if you will, for the D. C. Dental Society, I shudder every time I think about this sweets problem.

In both instances which I witnessed firsthand the receptionist tried to keep the younger set from committing mayhem to each other and on the furnishings in the office by resorting to the cavity-creating practice of distributing lollipops to all the children present and accounted for. In the first physician's office there were 4 children who received the sweet goodies and in the second there were 6 children, all under 8 years of age; 2 had only accompanied their parents and weren't even patients. These 2 youngsters got the lollipop treatment too—a sort of bonus, as it were.

It is indeed heartbreaking to restore a child's mouth to a healthy condition only to find 6 months or a year later that sweets have caused caries to destroy the work which was so painstakingly placed in the child's mouth.

For years dentists have been successfully treating children without resorting to bribing them with sweets. In my office we use all sorts of gadgets—trinkets, rings, and the like—and we have yet to receive a complaint or a request for lollipops from the youngsters.

I am certain that the 2 physicians I visited, both specialists in their respective fields, realize the importance of building strong and healthy bodies; otherwise they would not be in the medical profession. And, as a matter of fact, both are strong believers in prevention as well as cure. I know because I visited one at his insistence in order to prevent possible trouble with my back. It is also true that both these men would direct their patients, for the care of any malady or symptom outside of their specialty, to the proper physician in that particular field.

It is indeed enlightening and encouraging to see how well-integrated the medical profession appears to be—how one doctor in one specialty follows the advice and recommendations of another in a different field. So the obvious must suggest itself. Why don't physicians follow our advice and recommendations with respect to oral health and prevention of dental disease?

The part that sugar plays in the carious process is well known and is a scientific fact. Why then do medical practitioners disregard the oral health of their patients while treating the rest of the body? Is oral health less important than the health of the kidneys, liver, back, etc.?

The answer is a loud, emphatic NO! The mouth is the gateway to good health.

In all truthfulness I believe that some of the fault lies with us dentists. There seems to be a lack of communication between the 2 professions. There is a definite need for better public relations and exchange of information between the dentists and the physicians. Perhaps the ADA and AMA journals should be published as one, or, at the very least, the local medical and dental publications should open their editorial pages to each other.

I believe the time is long overdue that we take steps to discuss our problems with physicians so

Opinions expressed in contributions to the Editorial Section are those of the writers and do not necessarily reflect the views of the Medical Society of the District of Columbia

that both professions might work together in closer harmony to treat, prevent, and conquer human maladies. The medical and allied professions can and must work together as a team for one purpose—toward that common and ideal goal, a healthy, vigorous patient.

Hector E. Castro, D.D.S.
Chairman of Public Relations,
District of Columbia Dental Society

Report on Trauma*

The North Carolina Chapter of the American College of Surgeons, as have many others, has been quite concerned about the early management of trauma. That there are inadequacies in present methods of handling this problem is pointed out by a recent review of the hospital records of 25 injured patients, selected at random, who succumbed within 7 days of admission to a hospital. Of these, 8 patients lost their only chance of survival, 5 as the result of failure to maintain a proper airway and 3 because of failure to initiate appropriate therapy. Five of these 8 had been seen by a physician prior to arrival at the hospital where they died.

As a result of this study and conversations with others interested in the problem, a subcommittee was established and charged with the task of better defining the quality of the early management of trauma in North Carolina and to make specific recommendations.

To set about this task, letters were sent to more than 100 physicians in all parts of the state posing the following questions:

1. What is the most common type of trauma encountered in your practice?
2. What is the most common error which you encounter in the early management of the acutely injured patient?
3. From your experience, what would you name as the most commonly misunderstood and mismanaged problem in trauma?
4. What is your opinion of the adequacy or inadequacy of the early management of acute trauma occurring in your geographic area?

There were 57 replies (tables 1–5).

While a majority of physicians indicated that the quality of the early care of trauma is adequate, many were quite specific in pointing out 4 shortcomings in this program: (1) failure to splint fractures; (2) improper management of chest injuries, and failure to maintain an adequate airway; (3) improper management of head injuries; (4) failure to recognize coëxisting injuries.

TABLE 1: Physicians Replying to Questionnaire

	No.
General surgeons	24
Orthopedic surgeons	17
Thoracic surgeons	6
Neurosurgeons	4
Ophthalmologists	3
Urologists	2
Otolaryngologists	1
Total	57

TABLE 2: Most Common Injuries Encountered

Combined injuries	16
Fractures	12
Soft tissue injuries	13
Chest injuries	6
Abdominal injuries	5
Head injuries	4
Hand injuries	3

TABLE 3: Most Common Error Encountered

Failure to splint fractures	21
Failure to recognize associated injuries	13
Failure to maintain adequate airway	13
Improper management of shock (tourniquets, delayed treatment, etc.)	11
Improper position during transportation	9
Injudicious use of narcotics	2
Indiscriminate use of tetanus antitoxin	2

TABLE 4: Most Commonly Misunderstood and Mismanaged Problem

Head injuries	8
Chest injuries and compromised airway	14
Evaluation of multiple injuries	8
Blunt abdominal injuries	3
Fractures in general	8
Shock	6
Hand injuries	5
General care of wounds	3

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* Reprinted by permission from N. Carolina Med. J., vol. 23, no. 12, December 1962. Request for permission was made at the suggestion of Dr. Milton C. Cobey, Chairman, Committee on Trauma, Section III, American College of Surgeons.

Table 5: Evaluation of Early Care

Excellent	4
Adequate	27
Inadequate	15

An appraisal of the results of this survey suggests that the most critical time for the severely injured patient is the early phase of his care. In the hope of being of some aid in improving this aspect of trauma care, the North Carolina Chapter of the American College of Surgeons Committee on Trauma is initiating a Section on Trauma, to be published in the *North Carolina Medical Journal.* With the help of many physicians throughout the state, a brief, concise article will be offered each month for a period of approximately 2 years. These articles are not designed as an all-inclusive, final discussion of the problem, but will serve the salient and pertinent points in the management of various injuries. In addition, there will be scattered articles concerning some of the broader aspects of trauma.

The State Committee on Trauma, under the chairmanship of Dr. C. F. Siewers, of Fayetteville, will welcome any comment or criticism concerning this program. At the end of this series, appropriate acknowledgments will be made to those individuals who have been invaluable in the preparation of this program.

Health Dept. Notes

School Health Findings 1962–63

Through its School Health Services Division, the Department of Public Health provides physician service to District public and parochial schools throughout each school year. Frequency of this service (weekly to monthly) is related to school enrollment and the availability of staff physicians.

In addition to giving entrance medical and screening examinations, these physicians act as health advisors and educators in the schools. Their examinations are necessarily limited, but they do detect individual health problems in school children which might otherwise be neglected or unnoticed. In these cases the school child is referred to other physicians or clinics for medical care.

During the school year 1962–63, the D.C. Department of Public Health Child Health Clinics screened 2,146 students for entrance into school. These were the medical findings: 85 with dental problems; 48 with ear, nose and throat problems (38 of them tonsils); 50 emotional and and behavior trouble; 38 nutrition difficulties (28 underweight in this group); 32 each with orthopedic, allergic, and speech problems; 30 with skin problems; 29 hernias; 28 with eye defects; 21 with neurologic findings; 21 with primary tuberculosis; and cardiac findings in 19 (only 1 being rheumatic fever).

Medical histories on these 2,146 children showed 748 as having had measles. Polio immunization was shown for all but 38 children; DPT completed for all but 27.

Medical examination care was made available during the 1962–63 school year for 148,287 children enrolled in the District's public and parochial schools. In this population were detected 27,109 medical defects and conditions, of which 22,076 needed correction. Conditions in some children under the care of a family physician are not reported. However, of 4,732 abnormalities reported in the survey of elementary school children, the following were found: 1,111 skin conditions (including 223 ringworm); 914 with vision defects; 782 respiratory; 197 with eye other than vision; 191 with injuries (and accidents); 186 with nutrition deficiencies (22 anemia, 88 obesity, 82 other, including undernutrition); 176 with acute illness; 102 hearing and ear problems; 89 orthopedic; 87 allergic; 73 cardiac; 70 gastrointestinal; 63 genitourinary; and 56 neurologic.

The secondary schools produced 1,813 definite medical conditions. There were vision problems in 445; respiratory in 267; skin disorders in 203; and dental in 202. There were 89 with nutrition problems (71 of them obese); 86 with injuries; 54 with acute illness; 41 cardiac conditions (including high blood pressure); 37 with hearing and ear problems; 36 neurologic; 30 gastrointestinal; and 20 gynecologic and pregnancy.

A literal interpretation of these findings should not be attempted. But they do offer an apparent pattern of health and medical conditions among primary and secondary school children in the District of Columbia. With the referral, treatment and follow-up services available from clinics and physicians, most of these conditions can be corrected.

Murray Grant, M.D., D.P.H.
D.C. Director of Public Health

Health Hazards of Cigarette Smoking*

A FINDING by a special Federal Government committee of physician and scientist experts that cigarette smoking is a serious health hazard gave impetus to further research with the objectives of determining the harmful factors in smoking and eliminating them.

The House of Delegates of the American Medical Association had authorized a basic research program into smoking and health before the special committee's report was made public in January. The House Agriculture Committee approved legislation authorizing a Federal research program into how to make cigarettes safe. The Johnson Administration included in its fiscal 1964–65 budget an appropriation request for $5 million for research on smoking.

The 10-member Advisory Committee to the Surgeon General of the Public Health Service reached the unanimous conclusions that:

"Cigarette smoking is a health hazard of sufficient importance in the United States to warrant appropriate remedial action. . . .

"In view of the continuing and mounting evidence from many sources, it is the judgment of the Committee that cigarette smoking contributes substantially to mortality from certain specific diseases and to the overall death rate. . . .

"Cigarette smoking is causally related to lung cancer in men: the magnitude of the effect of cigarette smoking far outweighs all other factors. The data for women, though less extensive, point in the same direction."

Dr. Edward R. Annis, President of the American Medical Association, urged "the American people to give careful and thoughtful attention to this report and to the strong evidence linking smoking to cancer and other diseases. . . .It should be noted that the report indicates that further research could be valuable and, in this connection, Surgeon General Luther L. Terry expressed approval of the American Medical Association's comprehensive, long-range program of basic research on tobacco and health, which was announced last December. Despite the strong evidence against smoking which has been amassed in this report, it is unrealistic to assume that the American people are suddenly going to quit smoking. Because people will continue to smoke, research efforts should try to find how tobacco smoke affects health and, if possible, to eliminate whatever element in the smoke that may induce disease. This is what we hope to do through the AMA research project on tobacco and health."

Three members of the Surgeon General's Advisory Committee were named to the 5-member committee that will direct the AMA Education and Research Foundation's long-range program of research on tobacco and health. They are: Maurice H. Seevers, M.D., Ph.D., Chairman of the Department of Pharmacology at the University of Michigan Medical School and named Chairman of the AMA-ERF Committee; John B. Hickman, M.D., Chairman of the Department of Internal Medicine at the University of Indiana Medical School; and Charles LeMaistre, M.D., Professor of Internal Medicine, Southwestern Medical School.

The other 2 members of the AMA-ERF committee are Paul S. Larson, Ph.D., Chairman of the Department of Pharmacology at the Medical College of Virginia, and Richard J. Bing, M.D., Chairman of the Department of Medicine, Wayne State University College of Medicine.

The AMA Board of Trustees made an initial appropriation of $500,000 for the research program and announced contributions would be accepted from other foundations, industry, voluntary health associations, physicians and other sources—but only if given without restrictions.

On the clear understanding that there were absolutely no restrictions attached, a contribution of $10 million was accepted from 6 tobacco companies. These funds will be made available over a 5-year period as needed.

The first remedial action advanced by the Federal Government was new cigarette advertising regulations proposed by the Federal Trade Commission. The rules, subject to modification after open hearings in March, would require that in all cigarette advertising or labeling:

There be a clear warning that cigarette smoking may cause death; there be no implication that cigarette smoking promotes good health or physical well-being, and there be no claim that smoking one brand is less harmful than smoking another. The Federal Government banned the distribution of free cigarettes in Public Health Service, military, Indian, and Veterans Administration hospitals. The Government also launched educational campaigns pointing out the hazards of smoking to patients in the hospitals.

Highlights of the Advisory Committee report included:

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* This summary of "Smoking and Health: Report of the Advisory Committee to the Surgeon General of the Public Health Service" was prepared by the Washington Office of the American Medical Association.

MEDICAL SPECIALISTS—Board-eligible or certified, with combined residency and experience, to develop and provide authoritative medical policy and opinions regarding drugs and drug products; 5-day, 40-hour week. Entrance salary, $15,415. Periodic increases of $450 after first year. Advancement opportunities. Limited private practice permitted. Membership and participation in professional organizations encouraged. Liberal benefits of Federal employment, including life and health insurance, sick leave, vacation and retirement plans. Major costs of travel and transportation of household furnishings to Washington, D. C. will be paid. Send complete curriculum vitae to: Joseph F. Sadusk, Jr., M.D., *Medical Director*, Bureau of Medicine, Food and Drug Administration, Washington, D. C. 20201.

"The risk of developing lung cancer increases with duration of smoking and the number of cigarettes smoked per day, and is diminished by discontinuing smoking.

"The risk of developing cancer of the lung for the combined group of pipe smokers, cigar smokers, and pipe and cigar smokers, is greater than for nonsmokers, but much less than for cigarette smokers."

"The causal relationship of the smoking of pipes to the development of cancer of the lip appears to be established."

"Evaluation of the evidence leads to the judgment that cigarette smoking is a significant factor in the causation of laryngeal cancer in the male."

"Cigarette smoking is the most important of the causes of chronic bronchitis in the United States, and increases the risk of dying from chronic bronchitis. . . .

"For the bulk of the population of the United States, the importance of cigarette smoking as a cause of chronic bronchopulmonary disease is much greater than that of atmospheric pollution or occupational exposures. . . .

"Cigarette smoking does not appear to cause asthma."

"Smoking and nicotine administration cause acute cardiovascular effects similar to those induced by stimulation of the autonomic nervous system, but these effects do not account well for the observed association between cigarette smoking and coronary disease. . . . It is more prudent to assume that the established association between cigarette smoking and coronary disease has causative meaning than to suspend judgment until no uncertainty remains."

"Women who smoke cigarettes during pregnancy tend to have babies of lower birth weight.

"Information is lacking on the mechanism by which this decrease in birth weight is produced.

"It is not known whether this decrease in birth weight has any influence on the biological fitness of the newborn."

Dial-A-Dietitian Service Project

Between October 1963 and January 1964 the Dial-A-Dietitian Program answered 600 questions. Members of the District of Columbia Dietetic Association operate this project with financial assistance from the Nutrition Foundation of New York City. This endeavor has the endorsement of the local Medical and Dental Societies.

Qualified dietitians, known as "Doris Adams," volunteer their time to give person-to-person answers to callers within 72 hours. This time is needed for research to obtain the best possible answer.

Mrs. Mildred Brooks, Project Chairman, states, "Doris Adams does not provide diet prescriptions or give medical advice and diet counseling. Those wishing such service are referred to their family physician. However, assistance in adjusting medically prescribed diets to the individual is offered."

"It's our hope that those who use this service will also gain knowledge about what dietitians are," points out Miss Jean Pope, President of the D. C. Dietetic Association. "A dietitian has a Bachelor of Science degree in foods and nutrition from an accredited college. For membership in the American Dietetic Association, a dietitian must either have 1 year additional study as a dietetic intern, receive an advanced (M.A.) degree in the field of nutrition, or qualify by experience through standards set up by the Association."

The majority of questions concern food composition—its protein, vitamin, mineral, caloric and additive content. Other areas of interest are in food requirements, food fads, convenience foods, purchasing, storing and freezing of foods, and cooking procedures. Recommended nutrition books, requirements for the career of dietetics, request for consultant service of dietitians and speakers are subjects of many inquiries.

The successful community response of the Dial-A-Dietitian Program in the Washington Metropolitan Area is attributed to the unstinted coöperation of the members of the local Dietetic Association. As a source of information and guidance,the Dial-A-Dietitian Committee is grateful to its distinguished Advisory Board, which includes among its members Dr. Warren D. Brill, of the D. C. Medical Society, and Dr. Murray Grant, Director of the D. C. Department of Public Health.

The number to dial for Dial-A-Dietitian Service is 296-3121.

Physicians' Survey on Health and Medical Care Needs of the Aging*

FOR THE PAST SEVERAL YEARS the Medical Society's Committee on Aging has been concerned with the health and medical care needs of the older people in our community. Much of its activity has been directed toward self-education and consideration of existing programs and practices in the District of Columbia and the Metropolitan Area in the light of available knowledge and patterns of providing care elsewhere. This Committee and the Society have been active participants in many lay as well as many professional activities concerned with aging and had the major responsibility for the participation of the District of Columbia in the First White House Conference on Aging a few years ago.

The Committee has endeavored to keep abreast of activities in this field that might affect the practicing physician, and it has reported periodically to the Society's Executive Board and through the ANNALS[1] to the general membership. As one of its activities the Committee on Aging co-sponsored with the Professional Education Committee the 1962 Midwinter Seminar on Aging. This was not well attended, however, and it became evident at a postmortem meeting that, although the Committee had abundant general data on the field of aging as well as considerable national and local data, there was little or no information obtained from a most important source, the physician practicing in the District of Columbia. The Committee therefore initiated a study to determine the attitudes, experiences, and recommendations of the physicians caring for the aged in the community; they are ideally situated to evaluate their health and medical care needs.

Study

This study was designed to seek the following information:

1. Adequacy of resources and areas of unmet needs in so far as the practicing physician is concerned in caring for his aged and chronically ill patients.

2. Recommendations for community planning as to facilities and services for the aged.

3. Attitudes of practicing physicians toward existing or proposed community services.

4. Recommendations as to what the Medical Society can do or should do to improve patient care and promote functional health in the aged.

A questionnaire was prepared by the Committee on Aging with the assistance of the Society staff. This was mailed to those members of the Society who were classified in the categories of General Medicine and Internal Medicine. The data so obtained were tabulated by the Society staff and reviewed by the Committee.

Results

There were 255 respondents to the 787 questionnaires mailed (32.5 per cent). Questionnaires returned by physicians not in active practice or with practice limited to institutions were excluded as were the few questionnaires returned by physicians doing primarily psychiatry.

With the sampling limited to practicing internists and general practitioners, there were 223 respondents to 620 questionnaires (37 per cent), as follows:

	Mailed	Returned No.	Returned Per cent
General Medicine	210	59	28
Internal Medicine	410	164	40

In order to obtain some estimate of the percentage of practice the aged represented, the respondents were asked to indicate whether those aged 65 and over constituted one-quarter or less, one-third, or one-half or more of their practice. More than a third of the generalists and more than half of the internists reported from 33 to 50 per cent of their practice involved care of the aged. Two-thirds of the respondents indicated a special interest in the problems of older patients, but only 1 out of 5 physicians sampled thought that geriatrics should be a separate specialty.

To questions on utilization of nursing homes, 53 per cent of the internists and 34 per cent of the generalists listed patients in such facilities at the time of questionnaire completion, and a third of each group reported 1 or more patients in a general hospital that could well be cared for in a nursing home. Almost half of the respondents reported difficulty in locating satisfactory nursing care beds. There was no uniformity of opinion as to whether nursing homes should be urban or suburban, but 58 per cent of the internists thought they should be part of a hospital complex.

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* Prepared by the Committee on Aging of the Medical Society of the District of Columbia; Jack Kleh, M.D., Chairman.

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About a fifth of the physicians reported difficulty in securing "home-care" services. Fifty-six per cent of the generalists and 65 per cent of the internists reported patients currently receiving home nursing care, but only 8 and 10 per cent respectively had patients receiving homemaker or other types of home service. The respondents were particularly complimentary to the Visiting Nurse services.

Less than a third of the respondents felt that multiphasic screening and mass immunization programs would help them in caring for their patients, while more than two-thirds thought that such programs would compete with them in their private practice of medicine. In contrast, more than 90 per cent of the physicians sampled believed that an Information and Guidance Center would be of great assistance in securing facilities and services for their aged patients.

The final 2 questions offered the respondents an opportunity to make recommendations as to how health care for the aged can be improved in the areas of facilities, services, and financing, and what the Medical Society can do to further these objectives.

Most of the comments on facilities related to increasing and improving long-term care facilities. Many noted the desirability of an urban location, particularly in juxtaposition to general hospitals. One respondent suggested that the Medical Society sponsor such facilities.

The need for an Information and Guidance Service was reiterated by many under the "service" category, and the necessity for increased services to patients in the home was stressed.

The area of greatest need reported by 51 per cent of both groups was that of securing financial assistance for patients.

Most of the comments on approaches toward meeting medical care costs related to planning the financing for and minimizing the cost of catastrophic illness. There were several recommendations as to how financing could be accomplished, ranging from broader income tax deductions for those caring for aged individuals to several approaches to underwriting voluntary health insurance. There were several references to implementation of Kerr-Mills legislation and only 1 indicating support for Social Security-based financing.

Suggestions as to what the Medical Society can do ranged from "Wait for an analysis of the questionnaire" to "Find the Fountain of Youth," and there was 1 that, while seemingly facetious, on reflection could have great meaning, "The Medical Society should have a voice in the health programs in the District of Columbia."

Discussion

The high percentage of respondents to a mailed questionnaire indicates a considerable interest on the part of practicing physicians in the health and medical care problems of the aged. This has in part been due to political and legislative activities induced by socioeconomic pressures of a disproportionately expanding population segment and the controversy over Government versus private programs. Mounting interest and activities of governmental and voluntary health and welfare agencies at national, state and local levels have contributed. But the primary reason for increasing interest by the physician would seem to be the changing characteristics of his patient, from younger ones with acute disease and short-term illness to the elderly ones with chronic disease and the need for long-term care. The survey data support the concept that the practicing physician is seeing an increasing percentage of older patients with special needs. The aged patient has a much higher incidence of disease, requires more physicians' services, and often needs a variety of related medical, paramedical, and even nonmedical services. They average more hospital days and account for almost the entire population of skilled nursing care facilities.

The survey data confirmed the need for quality nursing care beds at a reasonable price. A third of the respondents reported 1 or more patients occupying beds in a general hospital who could have been cared for in a nursing facility if beds were available at a reasonable cost. The belief of the internist that nursing care beds should be part of a hospital complex reflects a national trend for acute disease hospitals to develop a long-term care division as part of that facility. The nursing home situation in the District of Columbia has long been under consideration by the Society and its Public Health Committee, and at one time the services of a panel of physicians were offered to nursing home operators for this purpose. There has been little improvement in this situation. The Survey results obtained suggest that the District of Columbia Medical Society should assume a more active role in upgrading existing nursing homes and increasing the number of beds available. The problems of licensure, accreditation, financing and personnel practices require that there be a joint planning group to maintain a continuing evaluation and to provide recommendations.

The greatest problem reported by the physicians was that of securing financial assistance for their patients in order to take advantage of such facilities as hospital beds, paramedical services, and physician services, including consultations or long-term care.

The physician practicing privately in the community cannot secure medical care services for his borderline economic patients from indigent-care programs without actually transferring this patient from his responsibility. For example, the patient who can afford the minimum fees charged by the physician for office visits or even visits in the home may not be able to afford restorative services, prosthetic devices, or even a medical consultant. If the patient is to receive these services from one of the existing indigent- or medically indigent-care programs in the District of Columbia, the physician must transfer his patient from his care to that of a Health Department or contract hospital clinic.

There is dichotomy of medical care programs in the District of Columbia. The responsibility for indigent medical care has been relegated to the Department of Health by way of the Department of Welfare. Inpatient care is provided by D. C. General and contract hospitals; outpatient care is provided both through clinics attached to these facilities as well as some that are free-standing. Service in the home is available on a very limited basis. There is little overlapping between the private practice of medicine and this program, and while this overlapping does occur it is usually through programs of medical research and education.

More and more Public Health programs include the practice of medicine. The Social Security Administration has stated that the provision of medical care to the indigent is just as fundamental as the provision of food, clothing and shelter. This places the responsibility for indigent medical care in the Department of Welfare. These policies are particularly applicable to the procurement of medical care to the aged. Effective programming in this community or any community must be contingent on coöperative planning between private and community medical care programs.

There were sharp differences in the attitudes of the respondents to the addition of community services. Multiphasic screening and mass immunization programs were felt by most respondents not only to be unnecessary but actually in competition with the private practice of medicine.

Again, there has been little or no communication between the indigent-care program and private medical care. It seems reasonable to assume that the Survey respondents did not feel that mass immunization programs for indigents were in competition with them. On the other side of the coin there are many disadvantages and even risks attendant to providing and promoting multiphasic screening for all District residents, most of whom already are under private or indigent medical-care programs. This has already been demonstrated in other communities.

In contrast, more than 90 per cent of the physicians sampled supported an information and guidance center. Such a service would not compete with the private physician and would be helpful to his patients in much the same way that the Heart Association, Cancer Society, and other voluntary health agencies contribute to the patients' overall health and welfare.

The Medical Society offers a logical source of guidance in medical care programming for this or any other community. The Medical Society, representing both private physicians and those concerned with community health programs, is in the best position to coördinate all activities for the most active utilization of resources and for providing medical care for both private and indigent residents of the District. In almost every state or jurisdiction the practicing physician has not only a considerable interest but is an active participant in indigent and community medical-care programs.

Recommendations

The Committee recommends that:

1. The Society continue to explore sources of financing for an information and guidance service under the Society's auspices. The establishment of such a service was a recommendation of the Committee and has been approved by the Executive Board.

2. The Committee on Aging develop a plan for medical assistance for the aged and request the Executive Board to submit it to the proper authorities in the District of Columbia with a recommendation that a planning group be established to review this entire problem. This planning group should include physician representatives from the medical societies in addition to the District Departments of Health and Welfare and others as deemed feasible.

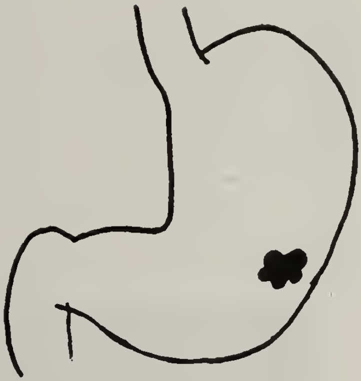
3. The Society continue to explore ways and means of obviating the current dichotomy of pro-

(Continued on page 250)

Doctor, remember:

There are no signs of early Cancer of the Stomach. Persistent indigestion demands complete evaluation. Associated nonspecific symptoms—nausea, vomiting, anorexia, epigastric pain and heartburn—may occur.

Diagnosis:
1. High index of suspicion
2. Gastro-duodenal series
3 Gastroscopy and biopsy
4. Gastric cytology and acidity



If diagnosis is made early, cure can be effected.

A copy of the Monograph, "Cancer of the Esophagus and the Stomach" is available to physicians upon request.

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AMA-ERF Contributions to Washington Schools

Dr. Edward W. Nicklas, President, and Dr. Paul R. Wilner, President-elect of the D. C. Medical Society, presented checks in behalf of the American Medical Association Education and Research Foundation to the Deans of the 3 medical schools in Washington on March 25. The checks totaled $31,523.92 and represented a portion of $1,208,463 contributed to the Foundation throughout the Nation in 1963 for medical school distribution. The medical schools can use these grants for whatever purposes they wish.

Present to accept the checks, in the designated amounts, were Dr. John Rose, of Georgetown ($14,103.60); Dr. John L. Parks, of George Washington University ($11,523.41); and Dr. Robert S. Jason, of Howard University ($5,896.91).

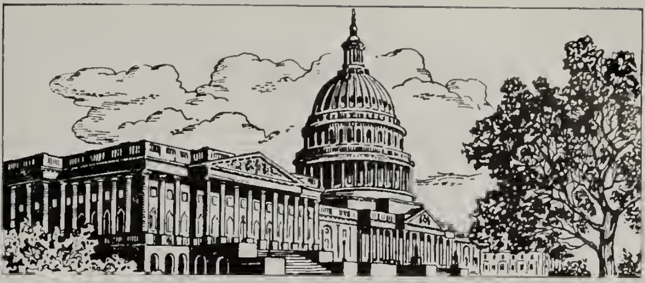
Physicians who give to AMA-ERF either designate a specific school or they give without designation and have their contributions apportioned equally among all approved U.S. medical schools. Of the AMA-ERF money being distributed to 87 schools this year, 31 per cent represents undesignated gifts. None of the contributed money is used for expenses of collection and distribution, because the AMA and its constituent societies assume all costs of administering the program.

AMA-ERF has distributed a Progress Report on its Loan Guarantee Program for Medical Education which carries through December 31, 1963. The report shows that loans have been made to 8,430 medical students, interns and residents, representing 85 medical schools and 583 hospitals. The principal value of the loans was nearly $14,000,000. California led all the states in the number of loans, followed by Texas, Tennessee, the District of Columbia, and New York.

In 1963, 332 loans were made to medical students, interns and residents in the District of Columbia. By medical schools the loans represented 52 for Georgetown, 105 for George Washington, and 104 for Howard.

The Loan Guarantee Fund is supported very generously by the pharmaceutical industry. It also has received contributions from many insurance companies and educational foundations. The American Medical Association has contributed $189,257, and the Woman's Auxiliary to the AMA (national, state and county) has contributed $61,223. The Student AMA has contributed $10,000, and many other scientific organizations have contributed to this fund.

THREE MEDICAL SCHOOLS BENEFIT BY AMA-ERF CHECKS: Dr. Edward W. Nicklas, President of the D. C. Medical Society, presents a check to Dr. John Rose, Dean of Georgetown University School of Medicine, March 25, in behalf of the American Medical Association Education and Research Foundation. Checks were also presented to Dr. Robert S. Jason, Dean of Howard University College of Medicine, and Dr. John L. Parks, Dean of Medicine at George Washington University. Dr. Paul R. Wilner, President-elect of the Medical Society, also took part in the pleasant ceremonies. Shown above (left to right) are Drs. Rose, Jason, Wilner, Parks, and Nicklas.



NEWS & PERSONALS

Boards & Committees

The Executive Board of the Medical Society of the District of Columbia met in regular session, March 23, 1964, in the Society's building. Dr. Victor R. Alfaro, Chairman, presided. Present were Drs. C. W. Camalier, Jr., K. C. Corley, J. Spencer Dryden, H. M. Hobart, R. T. Holden, Edward W. Nicklas, Josephine Renshaw, Duane C. Richtmeyer, Paul R. Wilner, and Mr. George Cooley, Secretary. Invited to this meeting were Dr. Irving Burka, Chairman of the Grievance Committee; Dr. Marvin C. Korengold, Chairman of the Ad Hoc Committee on Mass Polio Immunization Program; Dr. Leon Yochelson, Chairman of the Committee on Mental Health; and Mr. Warren Magee, the Society's legal counsel. The meeting was called to order at 7:30 p.m.

Committee on Public Policy: Dr. Yochelson and Mr. Magee were present to discuss the action taken by the Committee on Public Policy which opposes the licensing of psychologists in the District of Columbia. In the discussion it was pointed out that certification or licensure is now in effect in 17 states, of which only 9 states provide for licensure. It was agreed that the report submitted by Dr. Yochelson and Mr. Magee be condensed into a letter to be submitted to Dr. Murray Grant, Secretary to the Commission on Licensure.

Grievance Committee: Dr. Burka was present to review the background and to present the recommendations of his Committee relating to the disposition of complaints lodged against 3 members of the Society.

New Building Site: Mr. Magee reported that the settlement for the purchase of property at 2005–07 and at 2009 Eye Street, N.W. would have been completed except for some property encroachments which had been encountered. In both instances funds are being held by the D. C. Title Company pending final determination of the situation. The Board voted that Mr. Magee notify those concerned that monies relative to these encroachments be held in escrow until the matter is settled in each case.

Consulting Editor to the Medical Annals: The Board accepted the nomination, submitted by Dr. Wallace M. Yater, Editor, of Lt. Comdr. Vernon Neal Houk, MC, USA, of the Naval Hospital in Bethesda to serve as Consulting Editor to the MEDICAL ANNALS, replacing Dr. Thomas E. Cone, who has retired from the Navy.

Congratulations to Commissioner Tobriner: The Secretary read a letter signed by President Nicklas congratulating Commissioner Walter Tobriner on his reappointment as District Commissioner.

Mass Poliomyelitis Immunization Program: Dr. Korengold reviewed the events of the past 3 weeks in reference to the forthcoming Mass Polio Immunization Program using Sabin oral vaccine. Dr. Korengold called attention to the expenses which would be incurred in putting on such a program and which he thought should be shared by the adjoining medical societies of Maryland and Virginia, which are coöperating in the program. The Board authorized President Nicklas to write a letter to Kal, Ehrlich and Merrick Advertising, Inc., which firm is in charge of the publicity, assuring its officials that the D. C. Medical Society will assume its portion of the costs involved in the advertising and public relations portion of this program.

After considerable discussion in reference to the age limits of vaccinees the Board voted to approve in principal the mass immunization of Sabin oral vaccine for all age groups beyond 2 months. The Board voted further that Dr. Nicklas be requested to seek an audience with the Commissioners of the District of Columbia to present this viewpoint of the Board.

Because of the lateness of the hour and many matters still pending, the Board voted to reconvene on Monday, March 30, at 7:30 p.m.

Meeting of March 30, 1964

Dr. Alfaro, Chairman of the Board, called the meeting to order at 7:30 p.m. Present were Drs. Corley, Dryden, Holden, Nicklas, Renshaw, Wilner, and Mr. Cooley, Secretary.

Committee Meetings: The Secretary reported that the following committees had met since the Board meeting in January:

February	18	Grievance Committee
	19	Committee on Constitution and By-laws
	25	House Committee
	25	Committee on Public Policy
	26	Medicolegal Committee
	26	Program Committee, Annual Scientific Assembly
	26	Committee on Poliomyelitis
March	4	Committee on Public Health
	4	Committee on Constitution and By-laws
	6	Review Board for Prepaid Medical Care Benefits
	8	Ad Hoc Committee on Mass Polio Immunization Program
	9	Physician Placement Committee
	11	Board of Credentials
	11	Committee on Hospital Relations
	15	Ad Hoc Committee on Mass Polio Immunization Program
	16	Committee on Medical Care
	16	Committee on Occupational Health
	17	Grievance Committee
	18	Committee on Rehabilitation
	18	Committee on Constitution and By-laws
	20	Cancer Control Committee
	22	Ad Hoc Committee on Mass Polio Immunization Program

New Building Site: The Secretary reported that because of some encroachment problems the architect and the legal counsel would meet with the Board at the next meeting. In the meantime they would confer with the owners of the properties on either side of 2005–07–09 to determine what if any arrangements could be made to move the Society's site either way.

Committee on Public Health: In accord with recommendations submitted by the Committee on Public Health, the following actions were taken by the Executive Board:

1. Rheumatic Fever Program. This is a registry for adults being developed by the D. C. Health Department in coöperation with the Washington Heart Association, with financial assistance in the form of a 3-year grant, totaling $250,000, from the Public Health Service. The purpose is to register all diagnosed cases of rheumatic fever from hospitals and to seek similar coöperation from practicing physicians. The Health Department would try to encourage individuals who are not under a physician's care to seek such professional care.

The Committee approved the Rheumatic Fever Registry as proposed by Dr. Grant and so recommended to the Executive Board. Dr. Herbst requested that his vote be recorded in opposition to this, since he questioned the procedure of planning such projects without the Medical Society being a party to the planning.

The Board voted to approve the recommendation of the Committee and requested the Committee's Chairman to appoint a subcommittee to follow the development of this Registry to see that it remains a registry and does not become a treatment center.

2. Measles Vaccination Program. The Board approved the recommendation of the Public Health Committee and requested the Section on Pediatrics to develop a Measles Vaccination Program to be conducted simultaneously with the D. C. Health Department.

3. Smallpox Prevention Program. The Board approved the Committee's endorsement of a Smallpox Prevention Program to be carried on by the Health Department, with special concern for the many persons disembarking here from foreign countries; it also approved the appointment of a subcommittee to work with Dr. Grant on such a program.

4. Public Health Advisory Council. The Committee on Public Health voted to create a subcommittee to investigate, study, and consider the proper relationship that should exist between the Medical Society and the D. C. Health Department and the Medical Society and the public in so far as medical service and public health needs are concerned.

This action was approved by the Executive Board with the request that such subcommittee report fully as to its findings and recommendations directly to the Board. The Board requested that the Chairman of the Committee inform its members that no policy is binding upon the Society until approved by the Executive Board or by the Society at one of its meetings or by mail vote.

Committee on Public Policy: The Board concurred with the following actions of this Committee:

1. The Government of the District of Columbia had requested a definition of nursing. The Board agreed with the Committee that the definition of nursing practice offered by the American Nursing

Association's Board on September 22, 1955, is considered acceptable by this Society. The definition referred to is as follows:

> "Practice of nursing: The practice of professional nursing means the performance for compensation of any act in the observation, care, and counsel of the ill, injured, or infirm, or in the maintenance of health or prevention of illness of others, or in the supervision and teaching of other personnel, or the administration of medications and treatments as prescribed by a licensed physician or dentist, requiring substantial specialized judgment and skill and based on knowledge and application of the principles of biological, physical and social science. The foregoing shall not be deemed to include acts of diagnosis or prescription of therapeutic or corrective measures."

2. The Committee was of the opinion that the possibility and advantages of practicing medicine under a professional corporation and association statute should be investigated by the Medical Society. In handling the public policy aspects of such a legislative enterprise the Committee moved that the Medical Society refer to the physicians involved in the practice of medicine as "professional groups who under the present law cannot incorporate." The Board accepted this motion.

3. S.2523. An amendment to the Act to Regulate the Practice of Podiatry, now before the Second Session of the 80th Congress. This amendment requested that the Board of Podiatry Examiners may, in its discretion, waive both the written and oral tests or either such test and accept in lieu thereof the satisfactory completion by an applicant of an examination given by the National Board of Podiatry Examiners, provided that the applicant passes a practical examination given by the local Board, and provided further that the local Board considers the national examination adequately comprehensive.

The Board accepted the report of the Committee on this amendment and it also authorized the Secretary to state where necessary that the Medical Society has no objection to S.2523.

Ad Hoc Committee on Polio Immunization Program: The Secretary reviewed the development of this program and stated that Dr. Murray Grant, D. C. Director of Health, had agreed to coöperate in the immunization of all persons over 2 months of age.

Honorary Membership: The Board nominated for Honorary membership Rear Admiral George B. Burkley, MC, USN, Physician to the President.

Board of Credentials Report: The Executive Board approved the following recommendations of the Board of Credentials:

Active Members

James Allen Curtin, 110 Irving Street, N.W.
Ronald Stuart Deitch, 1150 Connecticut Avenue, N.W.
Armando Genaro DiBiasio, 19th and Massachusetts Avenue, S.E.
John Stanley Dillon, 3800 Reservoir Road, N.W.
Clarence Carl Edwards, 4526 East Capitol Street, N.E.
Marion Judith Finkel, 1900 South Eads Street, Arlington, Va.
Edward John Jahnke, Jr., 506 Lamberton Drive, Silver Spring, Md.
Ian Douglas McLaren, 300 Indiana Avenue, N.W.

Associate Members

Ramon Angeles, Jr., 808 Chesapeake Street, S.E.
Richard Demme Bauer, 2513 Bucklodge Road, Hyattsville, Md.
John J. Blasko, Veterans Administration Building
Joseph Samuel Salama, 203 East Oxford Avenue, Alexandria, Va.

Resident-Intern Members

Michael Anthony Jackson, 6524 North Capitol Street, N.W.
Leon Rand, 843 Berkshire Drive, Hyattsville, Md.

Transfers

Associate to Active: Joseph W. Costello, Jean O. Feys, Elisabeth K. Kalandros, and John C. Rose
Active to Associate: Josephine J. Buchanan
Active to Special: Louis S. London and Richard W. Wilkinson

Central Charge Service—Medical-Dental Division: The Secretary reported that Dr. James E. Chapman and Mr. John P. Stedehouder, of Central Charge Service, will appear before the Judicial Council of the American Medical Association, April 16, to express their views on the use of C.C.S. for the collection of medical bills. The Board requested that the Secretary be present at this meeting in order to offer any clarification of the Society's position on this matter.

Liaison Committee on Pharmacy and Medicine: In response to a request from the American Pharmaceutical Association, the Board voted favorably that a Liaison Committee on Pharmacy and Medicine be created, and that the President be authorized to submit appointees to such a committee.

Auto Leasing and Other Services: The Secretary discussed one of the activities which the Assistant Secretary had been reviewing, namely, auto leasing, in which certain records would be maintained at the Society's office, as well as other new services which could be offered the membership. The Board approved these staff activities.

The Board adjourned at 11:00 p.m.

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Tainter, M.L. and Buchanan, O.H., Ann. N.Y. Acad. Sc. 54:438, 1954

Meetings

The 113th Annual Convention of the American Medical Association will be held in San Francisco, June 21–25, 1964. An attendance of 15,000 to 16,000 physicians is anticipated. The Civic Auditorium has been completely modernized to provide ample space for the program and for the scientific exhibits. The industrial exhibits will occupy adjoining Brooks Hall under the north half of the Civic Center Plaza.

A special half-day program on various aspects of heart disease will be presented, June 24, by the American College of Cardiology, the American Heart Association, and the Section on Internal Medicine of the AMA.

The Research Forum program will be offered again at the San Francisco meeting.

The American Physicians' Art Association is again sponsoring an exhibition of paintings by physicians.

Officers of the Medical Society of the District of Columbia planning to attend the meeting are the official delegates to the AMA, Dr. Raymond T. Holden and Dr. C. Willard Camalier; Dr. Edward W. Nicklas, President of the Society; and Mr. George Cooley, Secretary.

Complete forms for hotel reservations as well as for advance Convention registration are appearing periodically in all AMA publications. The Convention Issue of the *Journal of the AMA* (May 11) carries the entire scientific program.

The Metropolitan Medical-Legal Society will meet, May 27, at the Army-Navy Club. The speaker, Mr. Joseph Bulman, will discuss "The Physician's Role in Negligence Actions."

Membership in the Society is open to all physicians in the Washington Metropolitan Area. Those who wish to attend the May meeting should contact the President, Dr. Samuel Becker, telephone Taylor 9-6828.

The Israel Medical Association will conduct its **Sixth World Medical Assembly** in Haifa, Jerusalem, and Tel-Aviv, Israel, August 2–14, 1964.

The American Physicians Fellowship, an organization of 3,100 physicians who are nonresident fellows of the Israel Medical Association, is sponsoring a 24-day jet flight tour to Israel and 3 European capitals in conjunction with the Assembly. Information and details about the Assembly or tour can be obtained by writing to the American Physicians Fellowship, 1622 Beacon Street, Brookline, Mass. 02146.

General News

The Board of Trustees of the International Academy of Proctology announces the activation of the **International Board of Proctology**. This Board was established by incorporation in March of 1950 "to provide an opportunity for the recognition and judgment of the qualifications and training of competent and responsible specialists in the practice of proctology."

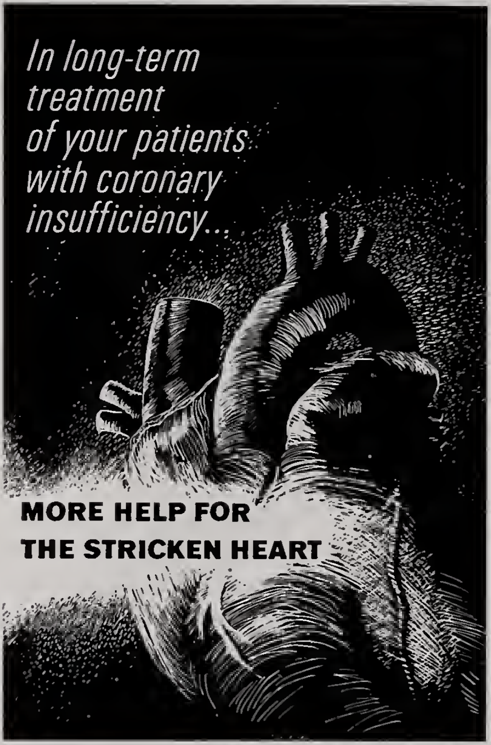
The Board of Trustees of the Academy has directed that there will be no examination for certification as a diplomate of the Board. The criterion of the World Medical Association, eminence in the area wherein the applicant practices, will be a fundamental requirement. Fellowship in the Academy is a second requirement since such fellowship also recognizes the special clinical qualifications of the Fellow.

At a recent meeting of the Board of the Academy, the Trustees authorized the formation of Sections in the allied specialties of general surgery, internal medicine, gastroenterology, nutrition, psychosomatic medicine, roentgenology, and anesthesiology within the general framework of the IAP.

All physicians who limit (or partially limit) their practice to proctology and/or its allied fields may now apply for fellowship. Applications for fellowship and further information may be obtained from Dr. Alfred J. Cantor, Executive Officer of the Academy, 147–41 Sanford Avenue, Flushing, New York.

The Public Health Service has released a special Task Force Report entitled "**The Future of Tuberculosis Control.**" Appointed by Surgeon General Luther L. Terry, the Task Force was asked to consider steps that should be taken to accelerate tuberculosis control efforts in the United States. The Report indicates that TB remains a problem of considerable magnitude, that its control is complex, and that the incidence of the disease can be sharply reduced through the concerted application of existing knowledge and skills.

In accepting the Report, Dr. Terry expressed appreciation to the members of the Task Force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for their careful analysis of the TB problem and for their proposals to reduce its incidence. Chairman of the study group was Dr. John D. Porterfield, Coördinator of Medical and Health Sciences at the University of California. He is an Associate member of the D. C. Medical Society.

Single copies of the Report are available from the Communicable Disease Center (Public Health Service), Atlanta, Ga.

The Eye Research Foundation of Bethesda (Maryland) is now affiliated with the University of Maryland School of Medicine for purposes of teaching and research. The Medical School's Department of Ophthalmology, headed by Dr. Richard D. Richards, will work closely with the Research Foundation. Residents in ophthalmology will be sent to the Foundation for training in basic and clinical research problems and Senior Investigators at the Foundation will be eligible for faculty appointments at the Medical School.

The Eye Research Foundation is a nonprofit organization set up under a trust fund nearly 6 years ago. It occupies a new building near the National Institutes of Health in Bethesda. Dr. William M. Hart, Director of the Foundation, is an Associate member of the D. C. Medical Society.

The Washington Psychiatric Society elected officers at its meeting, March 20. They are:

Dr. John D. Schultz, *President-elect*; Dr. Richard A. Steinbach, *Secretary*; and Dr. Paul Chodoff, *Treasurer*.

Dr. Leon Yochelson, who served as President-elect for 1963–64, is the new President.

Dr. Jack Ewalt, President of the American Psychiatric Association, was present at the March meeting to speak on "Community Responsibility of the Psychiatrist."

The Metropolitan Medical-Legal Society elected the following officers at its meeting, March 25:

Dr. Samuel Becker, *President*; Dr. Frederick B. Hartsock, *Vice President*; and Dr. Oscar Levine, *Secretary-Treasurer*.

Dr. Maurice H. Herzmark is the Program Chairman for 1964. The Society meets every 2 months on the fourth Wednesday of the month, September through May.

Brig. General Byran C. T. Fenton, who recently retired from the U. S. Army Medical Corps, has been appointed **Director of the De-**

partment of Governmental Medical Services of the American Medical Association. He accepted his new post in April.

The Department is the AMA's liaison with all medical services programs conducted by local, state and Federal governments. Among such programs are military medical affairs, medical assistance to the aged, Federal medical research grants, the Social Security Administration, veterans' medical care, Workmen's Compensation, the U. S. Public Health Service, and Federal aid to education.

Dr. Fenton is a medical graduate (1932) of the University of Nebraska. He was assigned to the European Theater of Operations in World War II where he served as Deputy Chief of the Medical Supply Division. More recently he was Director of the Office for Dependents' Medical Care.

Another recent announcement from AMA Headquarters is the appointment of **Dr. Patrick B. Storey** as **Director of the Department of Postgraduate Programs.** He will assume his new post on July 1. Presently he is Associate Professor of Medicine and Associate Dean of the University of Maryland School of Medicine in Baltimore.

The Department of Postgraduate Programs, until recently known as the Department of Scientific Assembly, is in charge of planning and organizing the scientific programs of the AMA's Annual Convention and Clinical Meetings. Dr. Storey will also serve as Secretary to the Council on Postgraduate Programs. He is a 1947 graduate of Georgetown University School of Medicine.

Dr. Gabriel P. Ferrazzano has been appointed **Chief of the Division of Hospitals in the Public Health Service,** effective July 1.

The Division of Hospitals administers the 12 general hospitals of the Public Health Service, 2 hospitals for neuropsychiatric patients and patients addicted to narcotics in Lexington, Ky., and Fort Worth, Texas, and the hospital for leprosy patients in Carville, La; also 24 outpatient clinics and 117 outpatient offices over the country.

Dr. Roy E. Ritts, Jr., formerly of Washington, has been named **Director of the AMA's new Institute for Biomedical Research.** He has served since last fall as Assistant Director of the AMA Division of Scientific Activities. Previously he was Professor of Microbiology at Georgetown University School of Medicine.

The Research Institute, scheduled to open in 1965, will be housed in an addition to the AMA building now under construction.

Dr. Louis H. Bauer, President of the American Medical Association in 1952–53, died, February 2, at his home in Rockville Centre, Long Island, N. Y., at the age of 75.

Dr. Bauer was an official of the American Medical Association for many years. He was elected to its Board of Trustees in 1944, and became Chairman of the Board in 1949.

He was one of the founders of the World Medical Association and was instrumental in its growth. He served as Secretary-General of the Association from 1948 to 1960.

Dr. Charles F. Morgan, former Director of the Department of Physiology at Georgetown University School of Medicine, died suddenly, March 10, 1964.

Dr. Morgan was one of the principal leaders in the work of the National Society for Medical Research for 16 years. He also was one of the founders of WARDS, an organization devoted to promoting better care of laboratory animals. While at Georgetown he was Chairman of the Washington Committee for Health and Research.

At the time of his death Dr. Morgan was Professor of Anatomy at the University of Minnesota School of Medicine and Chairman of the Minnesota Citizens' Committee for Health and Research.

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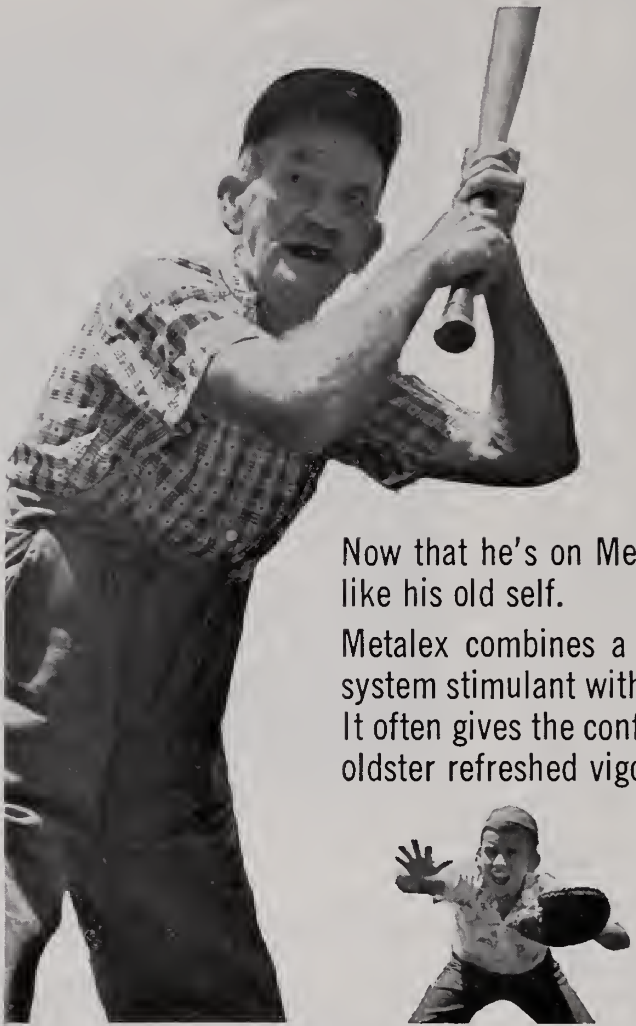

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Personals

Dr. James W. Watts, Professor of Neurological Surgery at George Washington University School of Medicine, was honored, March 13, on the occasion of his 60th birthday by his colleagues and former students with a special scientific symposium and dinner.

The scientific program was held at George Washington Hospital in the afternoon. Papers were presented by many out-of-town friends as well as by Washington physicians.

Toastmaster for the dinner, held at the Officers Club of Walter Reed Medical Center, was Dr. Paul C. Bucy, a long-time friend of Dr. Watts, who is Professor of Surgery at Northwestern University. Members of the arrangements committee were Dr. Watts' present associates in the Department of Neurological Surgery at George Washington. He was presented with a silver platter inscribed with the names of friends and former residents.

Dr. Manuel Velasco-Suarez came to Washington from Mexico City especially for this occasion. He is Professor of Neurology and Neurosurgery at the University of Mexico. Others arrived from New Haven, Conn., New York City, Philadelphia, Pittsburgh, Chicago, Houston, Charlottesville, Va., and Nashville, Tenn.

The papers presented at the scientific program will appear in the June issue of the Medical Annals, which will be a special issue in honor of Dr. Watts.

Dr. Harold M. Hobart has been appointed by Dr. Fred V. Hein, Director of the Department of Community Health and Health Education of the American Medical Association, to serve on his Subcommittee on School and Teacher Health Education. The third member of the Subcommittee will be Dr. Warren Southworth, Professor of Health Education at the University of Wisconsin.

The work of Dr. Hein's committee is related to the Second National Conference on Cardiovascular Diseases, scheduled for January 25–28, 1965. This is a joint endeavor of the American Heart Association and the National Heart Institute and Heart Disease Control Program of the Public Health Service. Dr. Cyrus H. Maxwell is serving as Executive Secretary of the Conference. Pre-conference offices are located at the Federation of American Societies for Experimental Biology, 9650 Wisconsin Avenue, Washington, D. C. 20014.

Dr. Edward W. Hawthorne, Professor and Head of the Department of Physiology at Howard University College of Medicine, and Dr. Walter C. Bowie, who serves in a like capacity at Tuskegee University School of Veterinary Medicine, will be co-directors in a study of the functioning of the heart, which has been made possible by a grant of $469,000 to the 2 institutions from the National Heart Institute. The project will extend over a 7-year period. Although the research will be conducted in Alabama it will be coördinated with research at Howard through a special communications system. The scientists will use farm horses in their experiments.

Dr. Karl C. Corley succeeded Dr. David S. Carroll, of Memphis, as Chancellor from the Radiological Society of North America to the American College of Radiology. Dr. Carroll was installed as President of the College during its 40th Annual Meeting in Tucson, Arizona, February 5–8.

Dr. Paul B. Cornely was reëlected President of the District of Columbia Public Health Association, March 6.

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Obituaries

Robert Thatcher Morse, A.B., M.D., F.A.P.A.

(1905–1964)

On Tuesday, February 18, 1964, American psychiatry lost one of its most vigorous and stalwart champions in the sudden death of our good friend and my dear friend of many years, Robert Thatcher Morse.

ROBERT T. MORSE, M.D.

Dr. Morse was born in Rochester, New York, on October 7, 1905, the first of 2 children of Frank Leslie and Agnes Ryan Morse. The family moved to Chicago when Bob was 13. The year was 1918 and the influenza epidemic was raging. The illness struck Bob severely and caused him to bear its scars in his heart for the rest of his life.

His tremendous energy and enthusiasm enabled him to overcome the sequelae of his illness, and when he was a student at Nicholas Senn High School in Chicago he became an expert tumbler, gymnast and boxer. After graduation from high school in 1924 he attended the University of Wisconsin for 4 years, majoring in psychology.

It was at Wisconsin that Bob made the decision to go into psychiatry. In 1929, at the beginning of the depression, he entered the freshman class of the Medical School at Northwestern. I was his classmate, and from that time on our paths never parted. During his second year of Medical School he began to attend the famed psychoanalytic seminars conducted by the late Lionel Blitzsten, one of the brilliant pioneer analysts of Chicago. These seminars, to which Bob contributed so much, from 1930 to 1937, were destined to play a major role in shaping his professional future.

Following graduation from Medical School in 1933 he had a brief internship at Holy Cross Hospital until his 18-month internship at Cook County was scheduled to begin. I had the great good fortune to be one of his 5 roommates at County, and it was during this period that Bob's professional style began to emerge. At Cook County, somewhat in self-defense, he became an expert in "Medical Yiddish," and to the end of his days prided himself on his mastery of some of the more esoteric phrases of that rich language.

After completing his internship he became the first Bernard Fantus Resident in Therapeutics, from 1934 to 1935, and did special work in controlling the standards of all parenteral fluids used at Cook County Hospital during that period.

From 1936 to 1937 he was house physician to the Palmer House in Chicago, a post which gave his insatiable interest in people and problems full opportunity for expression.

It was with this varied background that in 1937 he arrived at the Menninger Clinic, where he not only acquired his first formal training in psychiatry but also met and married his lovely and devoted wife, the former Helene Hawkins, who was a recreational therapist at the Clinic.

In 1938, almost immediately after his marriage, Bob and his bride moved to Rockville, Maryland, to begin work at Chestnut Lodge, where he remained in a full- or part-time capacity until 1946. Ever since his arrival in 1938 he has remained active in the Greater Washington Area.

He began his private practice in Washington in 1939 and has always had his office in one of his 3 homes in Georgetown, the last at 3106 N Street, N.W. His practice grew rapidly, and within a short time he became one of the main referral sources for psychiatrists and psychoanalysts from all parts of the country. This often entailed countless hours on the telephone, and his skill and conscientiousness in this task were almost legendary. His great talent in reaching and helping the sick who were fortunate enough to get his help was remarkable, as can be attested by the host of patients who have felt his helping hand and healing influence.

If Bob was a fine doctor and a great friend, he was equally inspiring as a teacher. He became a training analyst for the Washington Psychoanalytic Institute in 1949, and beginning with that year had been on the faculty of the Department of Psychiatry of Georgetown University, where he held the post of Clinical Professor of Psychiatry. He was also engaged in teaching in his positions as consultant to the V.A. Mental Hygiene Clinic, Walter Reed Army Hospital, and the U. S. Naval Hospital, Bethesda.

His interest in community activities led him to accept a position as Physician Member of the Commission on Mental Health for the District of Columbia, from 1942 to 1948, a position which he filled with distinction. In 1958 he became the President of the Mental Health Film Board, which reviewed the professional content of some of the best mental health films to be produced in this country.

One of his greatest interests was in the organizational life of the various professional societies to which he belonged. It would take a very long time simply to list the memberships and positions which he held in the numerous societies of which he was a member.

In 1941 he was elected an Active member of the Medical Society of the District of Columbia and represented psychiatry for many years on its important Classification Committee. For almost 10 years he served as Vice Chairman of the Committee on Mental Health, and he was a member of the Planning Commission for the AMA Congress on Mental Health in 1962.

He was an early member of the Group for the Advancement of Psychiatry and acted as one of its committee chairmen and was a member of its Board of Directors for many years. He was also appointed a member of the Joint Commission on Mental Illness and Health, to which he devoted a tremendous amount of time and to which he contributed more than most people will ever know.

He was one of the founders and the second President of the Washington Psychiatric Society, from 1950 to 1951. He was Past President of the Washington Psychoanalytic Society and Treasurer of the American Psychoanalytic Association. He probably contributed the bulk of his spare time and energy to the American Psychiatric Association, which honored him by electing him to membership in its Council for a 3-year term, from 1958 to 1961.

In recent years his attention turned more and more to the problem of the psychiatric screening of personnel for sensitive positions in the U. S. Government. In 1958 he set up a psychiatric-psychological screening program for the U. S. Information Agency which showed great promise until it was terminated in 1961. Since then, as consultant to National Aeronautics and Space Administration and the U. S. Armed Forces-Georgetown Research Project, he had worked extensively on the Human Reliability Program.

He was devoted to his wife and his 4 children, Robert, Michael, Susan and Anne, and this devotion was returned by them in full measure. We all loved him in our own way and for that reason our loss is great. His fierce loyalty to his friends and to his profession and his great heart will live on in the memories of all who knew him.

Zigmond M. Lebensohn, M.D.

Extra-intestestinal Amebiasis—Osborn

(Continued from page 216)

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Chronic Effusive Pericarditis—Overholt and Osborn

(Continued from page 221)

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Fatal Intramyocardial Injection—Gregoratos and Walker

(*Continued from page 224*)

2. Hand injection of a small dose of contrast material under fluoroscopic vision or with simultaneous exposure of scout films immediately prior to the pressure injection.

3. Electrical triggering of the pressure injection so it begins during ventricular diastole.

Acknowledgment: The authors wish to express their thanks to Dr. William Mannion of the Armed Forces Institute of Pathology for examining the heart, and for his helpful suggestions.

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Preinfarction Angina—Kamin

(*Continued from page 226*)

in many of these patients. No matter what terminology is used to describe the patient with more than typical angina but less than frank infarction, it is important to recognize that coronary artery disease is always appreciable, never minimal, and that necrosis of the myocardium occurs much more often than we document it.

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Survey on Medical Care Needs of the Aging

(*Continued from page 236*)

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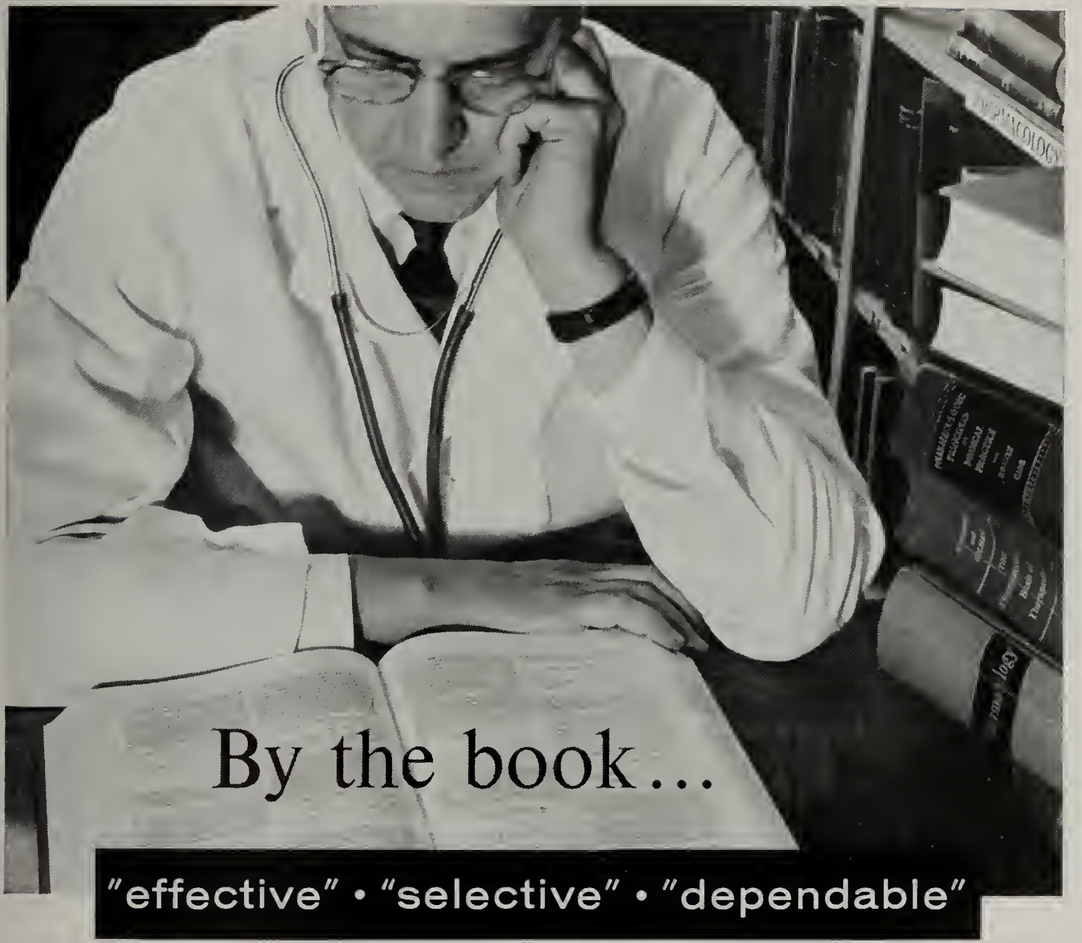

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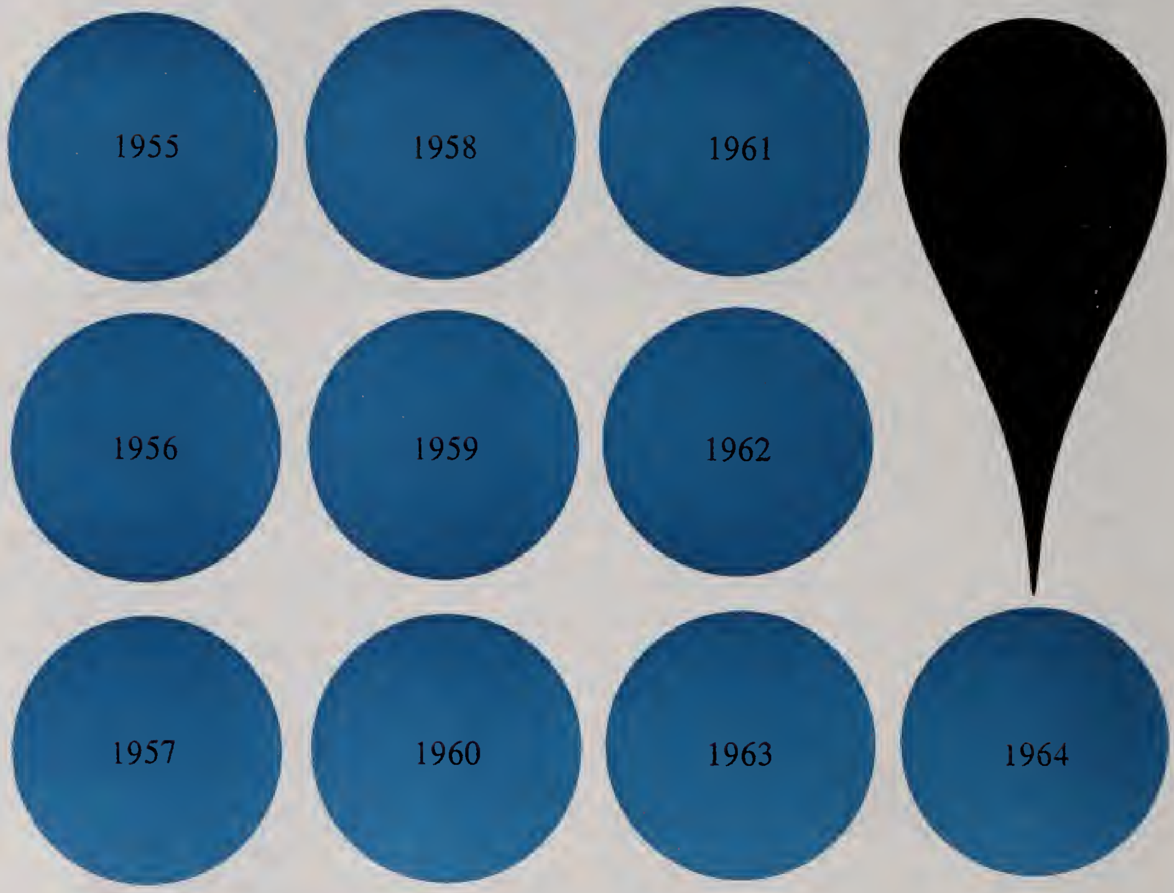
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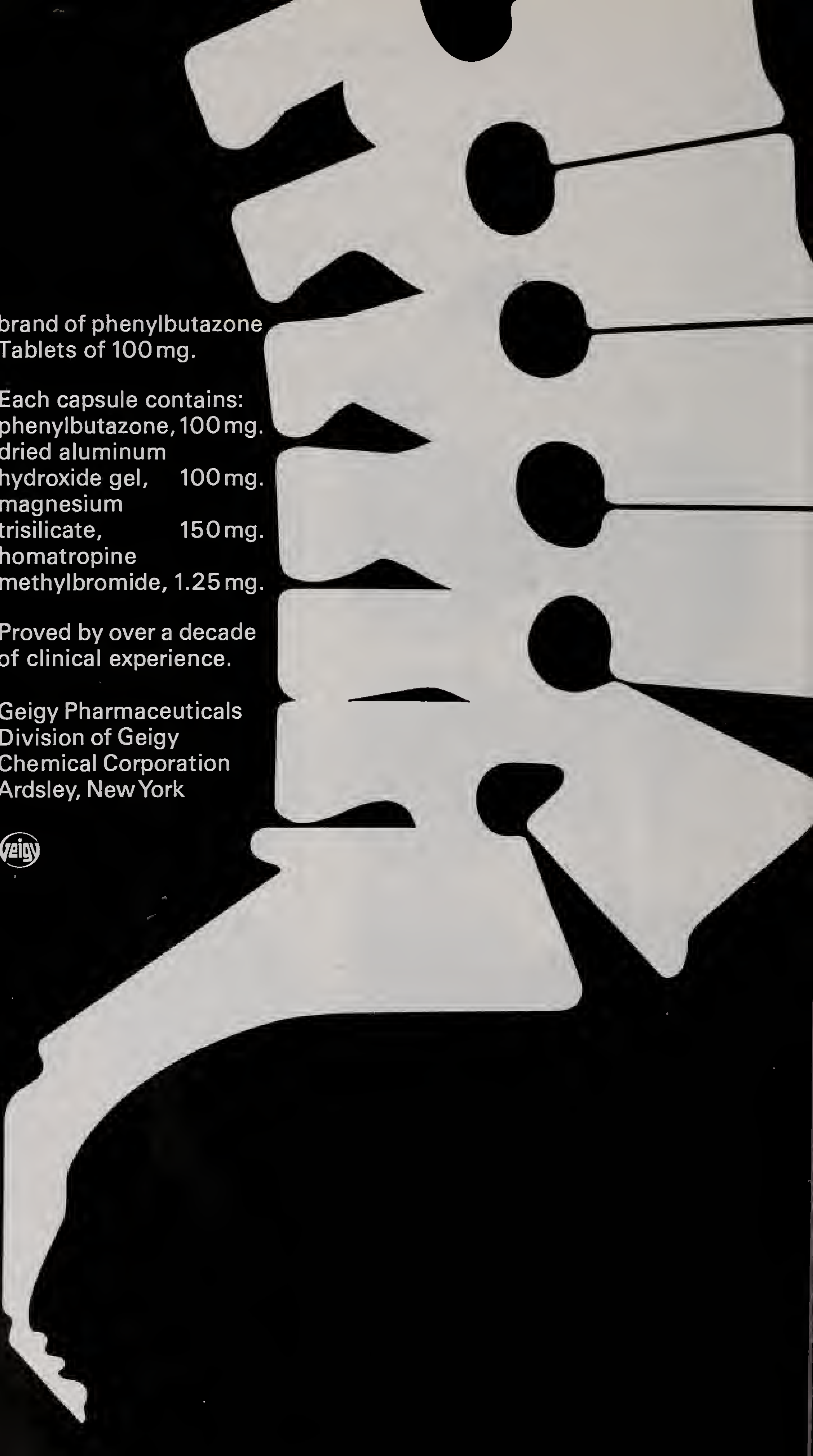

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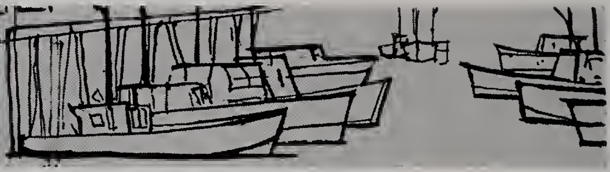

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Chapter VII. Sections-Section 7. Participation in Business Only *active members* registered in accordance with Chapter VI, Section 2 (A) shall have the right to participate in the *business deliberation* of a section.

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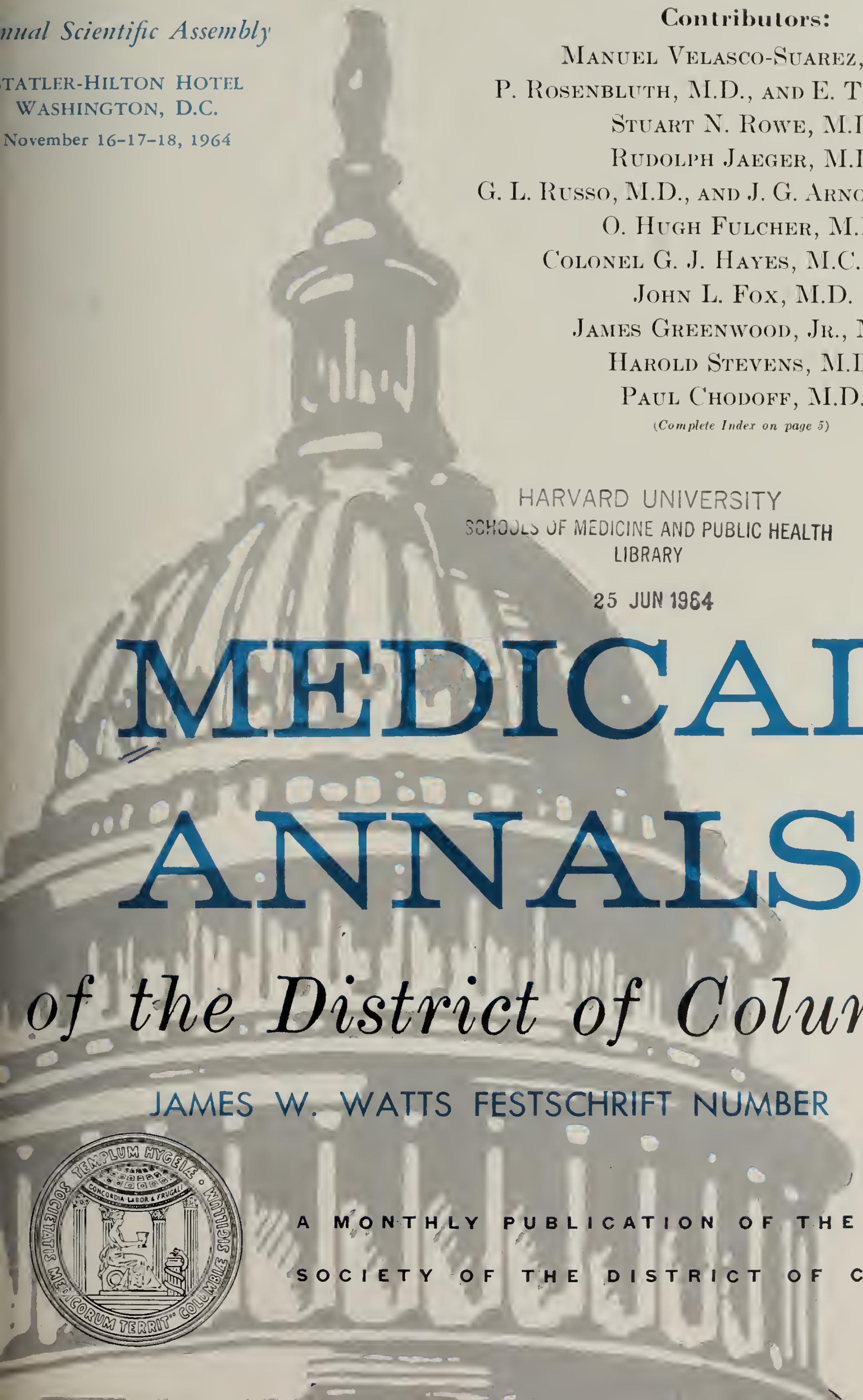

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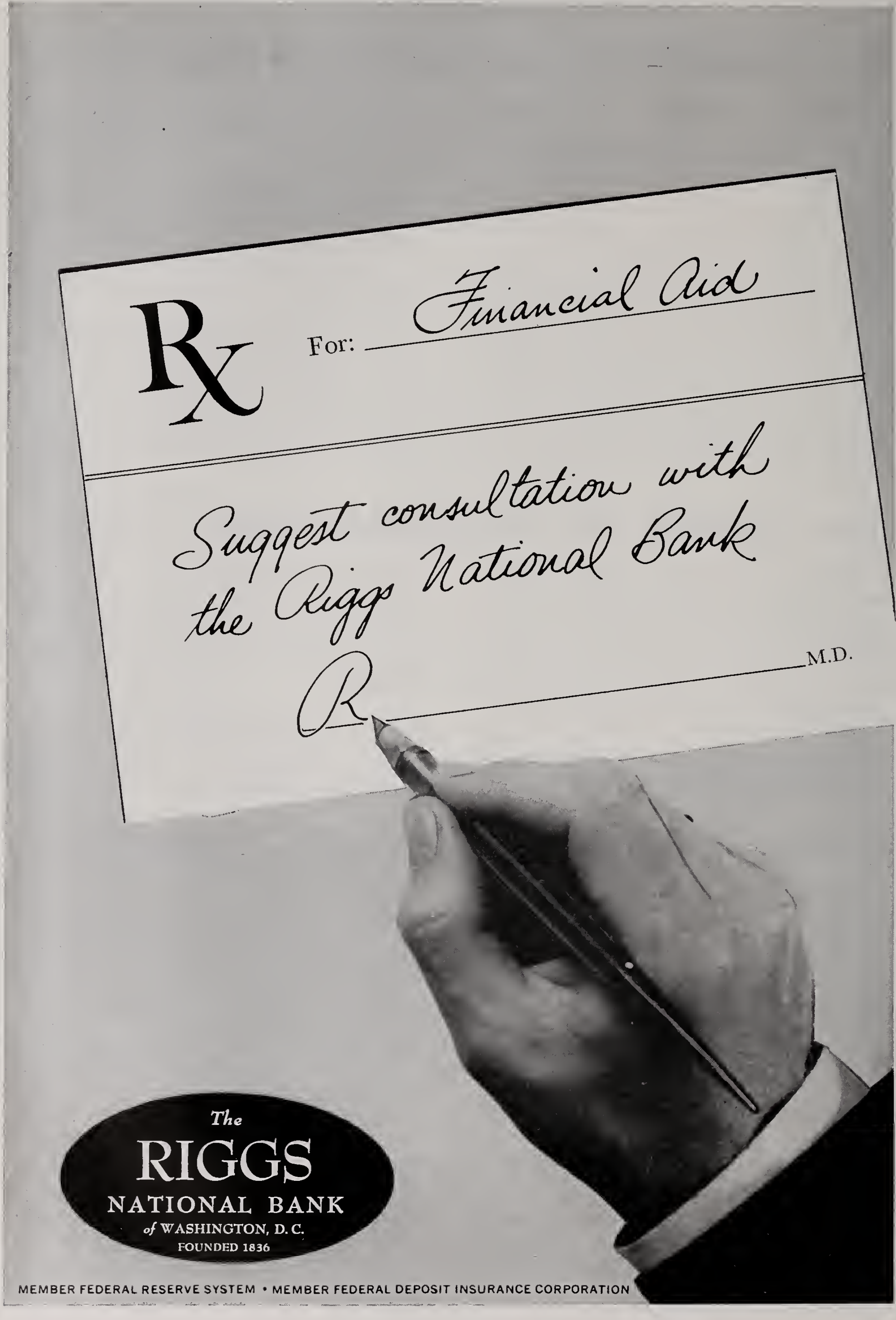
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Yearly Subscription, $4.50
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Second-class postage paid at Baltimore, Md.
Published monthly at
Mount Royal and Guilford Avenues,
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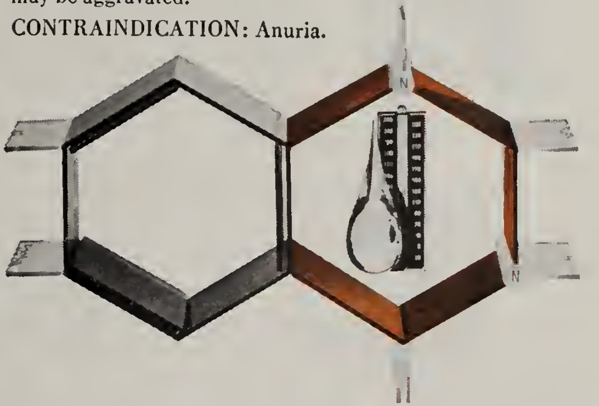

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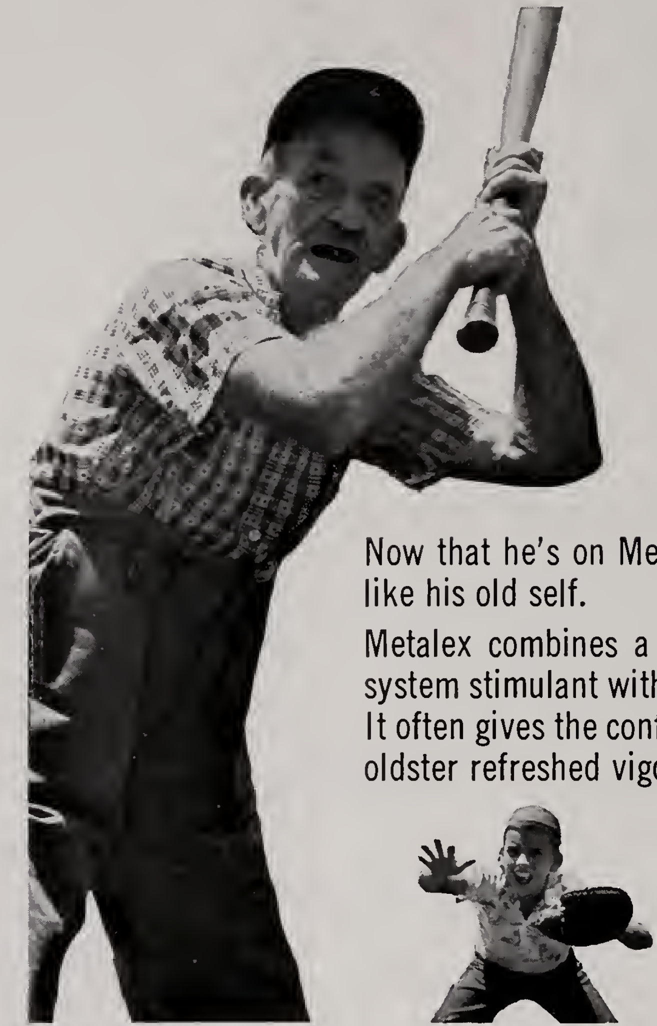
* AMA Council on Foods and Nutrition: The Regulation of Dietary Fat, *JAMA* 181:411-423 (August 4, 1962).
AMA Council on Foods and Nutrition: Composition of Certain Margarines, *JAMA* 179:719 (March 3, 1962).



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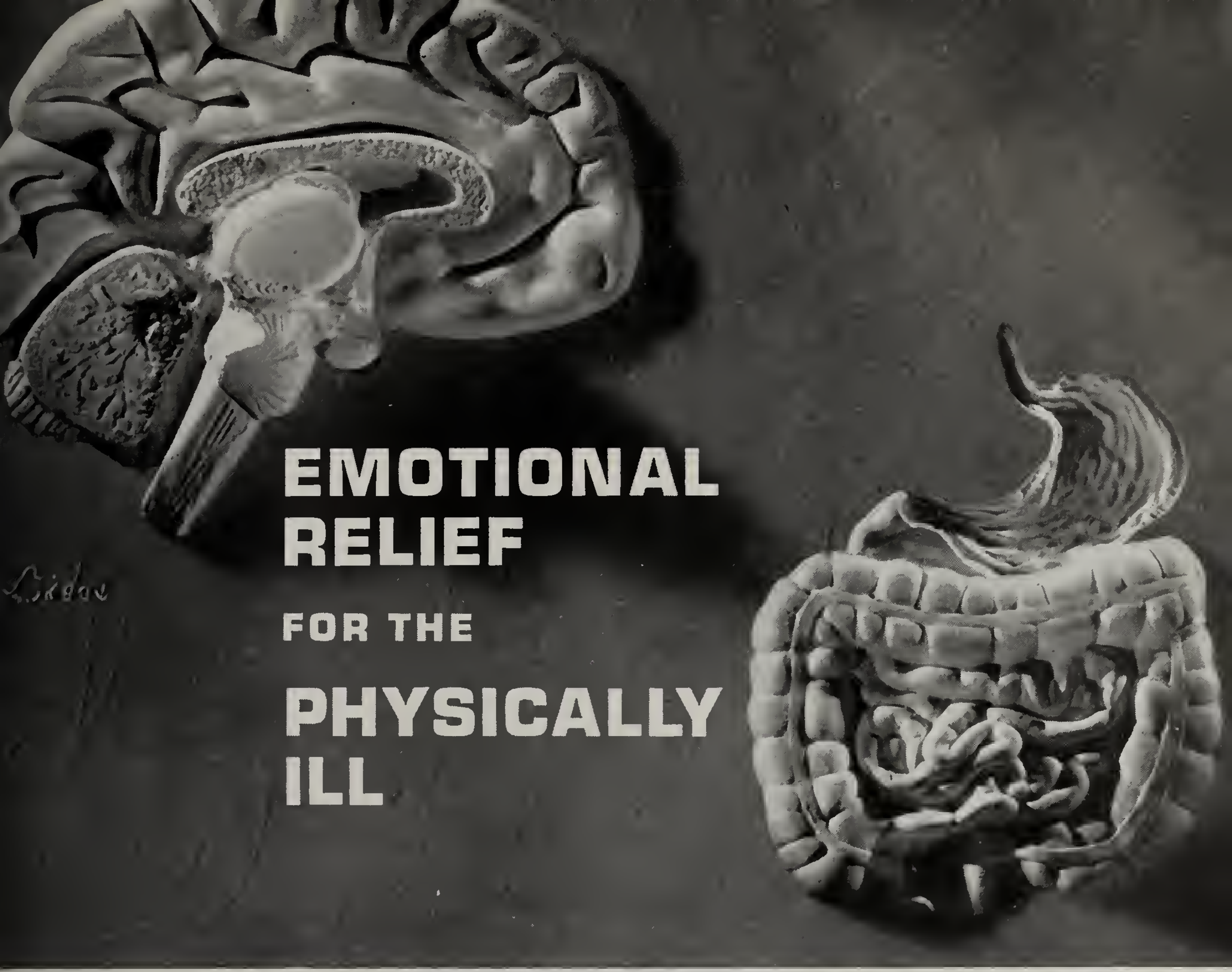

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BOOK REVIEWS

Current Diagnosis and Treatment. Henry Brainerd, M.D., Sheldon Margen, M.D., Milton J. Chatton, M.D., and Associate Authors. Price (paper), $9.50. Pp. 870. Los Altos: Lange, 1964.

This book is concise, easily read, and although not a text for students is an excellent reference and a valuable book. The naming of specific drugs by both trade and generic names is desirable to avoid confusion. It is believed to be up-to-date and written by authorities in each individual field of research and clinical medicine.

The toxicology section is invaluable for its specificity involving unusual poisons. In individual sections pertaining to topics, there are cross references (as to therapy) as well as bibliographies. Coverage of frequently seen disorders is relatively extensive, while only the necessary highlights are given for rare lesions, as well as for those least likely seen in medical offices, i.e., ophthalmology, parasitology, X-ray therapy, etc.

Because of its usefulness, it is hoped that with each succeeding revision it will grow in popularity and be a reliable reference for the busy practitioner.

Sammye A. Belcher, M.D.

Campbell's Operative Orthopaedics, 4th ed., volumes 1 and 2. A. H. Crenshaw, M.D., Editor; Lee Milford, M.D. (chapter on hand surgery), and 17 other contributors. Price, $57.50, 2 vol. Pp. 1916, with 1535 illustrations, including 9 in color. St. Louis: Mosby, 1963.

The fourth edition of this valuable and indispensable textbook, edited by Dr. Crenshaw, is a must for orthopedic residents and other echelons of this specialty. This book is 346 pages shorter than the third edition, edited by J. S. Speed in 1956, although it has been brought up-to-date. Many older operations have been deleted and a chapter on hand surgery added. The chapters on surgical physiology and apparatus have also been deleted in this edition. This book was written with such simplicity of style and clarity that it made reading very easy, and the reviewer found himself reading on as if the text were a novel, so delightful was the author's style.

The sections on the hand and lesions of the cervical and lumbar discs should be of special interest to the orthopedic surgeon because he initially handles many of these cases and works closely with the allied specialties.

Of 1,535 illustrations included in this edition, we are told that 510 are new. This is quite important, because no matter how clear the text, unless there are accompanying photographs and illustrations, the subject matter often remains vague, especially to the intern and resident.

The first 3 chapters deal with pre- and postoperative care, surgical technique, and surgical approaches, and have gone into more detail than the previous editions and deserve special commendation. Each chapter has its reference section, and the subject has been well documented. The author index includes just about every important contribution to orthopedic surgery.

This book should be in every medical school and hospital library so that medical students, interns and residents might have access to it, and it should certainly be read by every orthopedic surgeon.

Henry S. Robinson, Jr., M.D.

Current Pediatric Therapy. Sydney S. Gellis, M.D., and Benjamin M. Kagan, M.D. Price, $16.00. Pp. 747. Philadelphia: Saunders, 1964.

The legible type and the division of the pages into 2 columns lend to easy readability. The list of contributors is internationally formidable.

The material is well organized in systems, which facilitates reference, and the presentation is generally quite good. The student and generalist, because of their greater familiarity with comprehensive texts, may feel a need for greater elaboration. The realization that this is a text on therapy should, however, remove that detraction.

The coverage though wide and comprehensive does not, as one should expect, presume to cover all the nuances of individual therapy

The sections on seizure disorders, infectious diseases and poisonings are especially noteworthy. There are no major shortcomings in this text. The discussion on Dietary Treatment of Diabetics in a book of this calibre should, in my opinion, include a conversion (to familiar food) table in addition to the recommendation that a dietitian be consulted.

The book is highly recommended and should be well received by all physicians engaged in the day-to-day care of the pediatric group.

Victor L. Assevero, M.D.

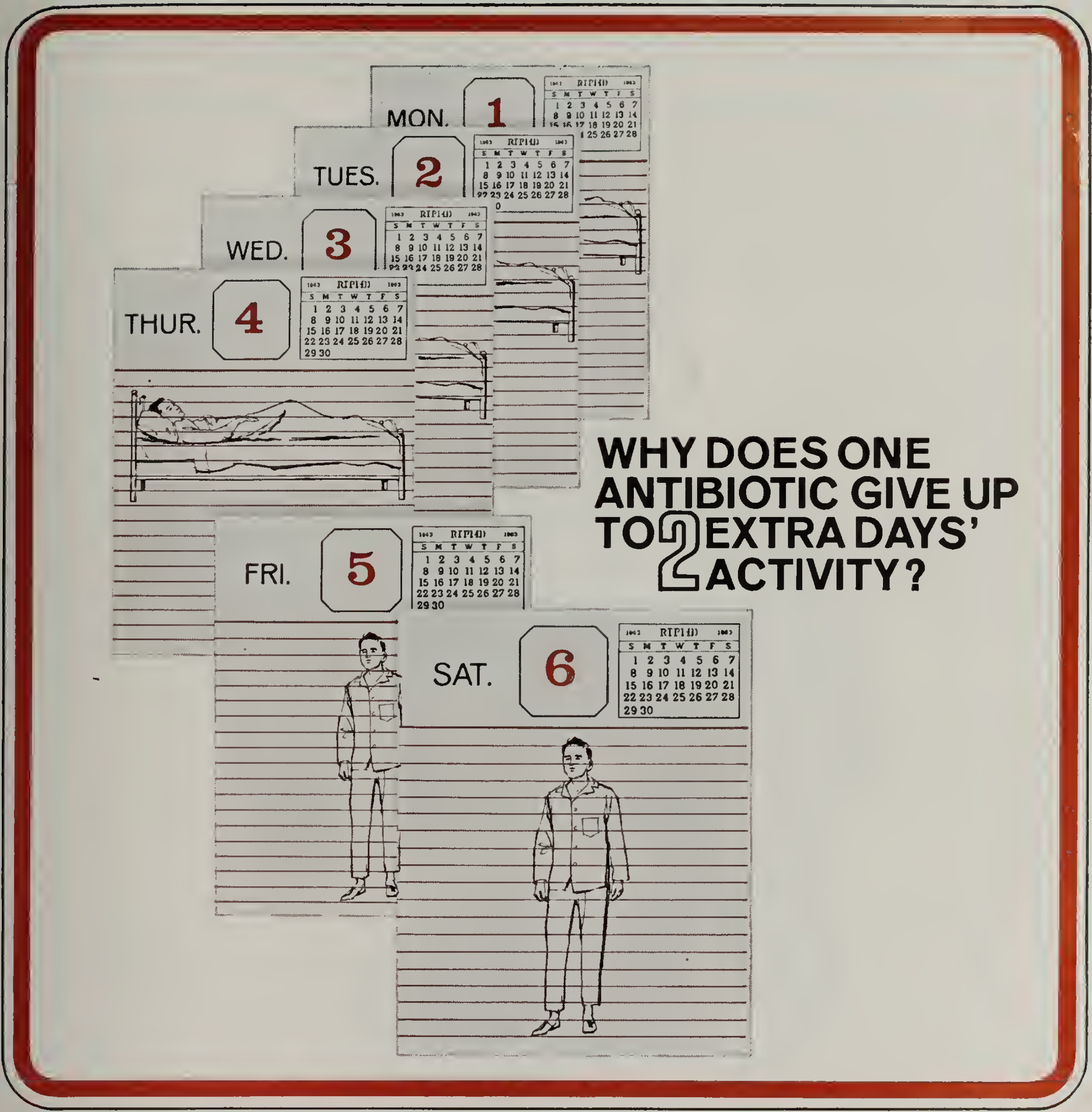
Medical Pharmacology—Principles and Concepts, 2nd ed. Andres Goth, M.D. Price, $11.75. Pp. 585, illustrated. St. Louis: Mosby, 1964.

In presenting the second edition of this book, the author calls attention to the present dynamic state of pharmacology, with new drugs and concepts of their modes of action evolving rapidly. He therefore states as his objective, to incorporate most of the important new concepts which are most meaningful to physicians and medical students rather than dwelling on isolated empirical facts and obsolete theories. To this end he appears to have been singularly successful.

The first section presents a review of the general aspects of pharmacology, which adequately but concisely covers the principles of absorption, distribution, metabolism and excretion of drugs. The sites and mechanisms of their actions are described, as are predictable and unpredictable side actions and factors governing their dosage.

Particularly useful chapters, bringing the subjects as up to date as is possible in a published work, are those on the pharmacologic approach to hypertension, psychopharmacology, cardiovascular disease, gastroenterol-

(*Continued on page 18*)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Book Reviews

(*Continued from page 16*)

ogy, and chemotherapy in neoplastic and infectious diseases. The older and established drugs in these areas are also adequately discussed.

In the somewhat more stabilized, although not static, areas the adrenal steroids, the antidiabetic drugs, the treatment of gout, anemias, histamine reactions, anesthetics and other conditions and drugs of current interest are treated adequately, concisely, and clearly.

Enumeration of other subject matter such as poisons and antidotes and prescription writing would be beyond the scope of a short review, but no subject matter appropriate to a text such as this appears to be omitted or slighted.

By reason of the aforementioned present dynamic state of pharmacology this book will undoubtedly require revision every few years to remain current, but its basic qualities as a text and reference would seem to make it a valuable and frequently used addition to the physician's or student's library.

Aloysius J. Connolly, M.D.

Diseases of the Heart and Blood Vessels: Nomenclature and Criteria for Diagnosis, 6th ed. By The Criteria Committee of the New York Heart Association: Charles E. Kossmann, M.D., *Chairman.* Price, $5.50. Pp. 463, with 33 illustrations. Boston: Little, 1964.

For those already familiar with the previous editions of the "Nomenclature and Criteria. . ." the 1964 revision is long overdue. The Herculean task of updating this volume was executed by a committee of 40 authorities working in 8 subgroups under the general chairmanship of Dr. Charles E. Kossmann.

All recognized cardiac, arterial, venous, and lymphatic diseases are catalogued and concisely described. Multiple subdivisions enable one to make a precise diagnosis, including 1 or more of the diagnostic rubrics of the nomenclature. The etiologic, anatomic, physiologic, functional and therapeutic categorization of a patient's cardiovascular disease becomes a dynamic reality with proper utilization of this publication. Descriptive pathology is presented in terse, capsular form which gives one immediate command and understanding of the disease under consideration.

The section on roentgenologic diagnosis should be of value to the cardiac roentgenographer and roentgenoscopist. Its numerous pen and ink drawings of the cardiac silhouette graphically present the wide spectrum of the cardiac contour in health and disease. Our present system for tabulating electrocardiographic interpretations was originated in the early editions of this book. Today's electrocardiographer, skilled or neophyte, can profit from frequent reference to this illustrated text.

Students and physicians interested in internal medicine and cardiology are again indebted to the New York Heart Association for providing the profession with this book, a valuable tool in the diagnosis of heart and vascular disease.

Warren D. Brill, M.D.

Ciba Foundation Symposium Lysosomes. Edited by A.V.S. de Reuck, M.Sc., D.I.C., A.R.C.S., and Margaret P. Cameron, M.A. Price, $11.50. Pp. 446, with 79 illustrations. Boston: Little, 1963.

Lysosomes are cytoplasmic particles of ubiquitous distribution which contain a wide variety of hydrolytic and "degradative" enzymes. Of great physiologic significance is the finding that enzymes within the particle do not manifest their activity until the lysosome wall is breached. One may expect that the marked necrosis of tissues such as liver and spleen, observed shortly after death, is due to their high concentration of lysosomes which rupture and release proteolytic enzymes. Morphologic support for these chemical concepts comes from their identification with the pericanalicular dense bodies and with the, as yet equivocal, suggestions that they are represented by protein readsorption droplets of kidney, neutrophil granules of polymorphonuclear leucocytes, and by "dense bodies" from thymus.

The isolation of and concepts concerning lysosome activities were developed over the last 10 years by the Belgian School, led by de Duve, and have been buttressed and expanded by research groups throughout the world. This volume presents both a formal review of the state of investigation as well as a record of stimulating, informal discussions by leading authorities in this active research area. Lysosomes are here dissected with regard to their morphology and enzymatic contents as well as with their as yet speculative role in phagocytosis, development, and cell damage. The very real worth of this volume will be to the biochemically oriented pathologist rather than to the practicing clinician.

Ruth Kerr Jakoby, M.D.

Atomic Energy Encyclopedia in the Life Sciences. Charles Wesley Shilling, M.D., D.Sc., Editor and Major Contributor. With the assistance of Miriam Teed Shilling, M.A. Price, $10.50. Pp. 474, illustrated. Philadelphia: Saunders, 1964.

This book is unusually complete and the consideration of the individual items sufficiently detailed to be very helpful. This means, of course, that the various items have been well selected and the discussions of them well organized and compact so that wide coverage is accomplished in a book of moderate size.

The individual items are, of course, alphabetically arranged, but in addition the editor has provided a table of contents in which 15 broad areas of concern have been listed with individual items indexed under these major headings.

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(*Continued on page 31*)

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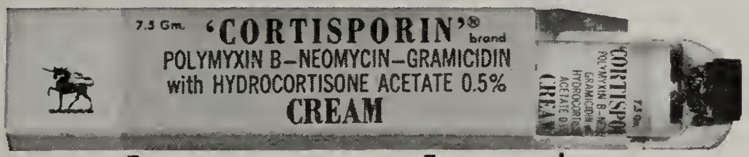
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June 1964

VOLUME XXXIII • NUMBER 6

James W. Watts Festschrift Number

THIS ISSUE of the MEDICAL ANNALS is dedicated to DR. JAMES WINSTON WATTS in his sixtieth year, and is comprised of papers presented by his neurosurgical friends on March 13, 1964, at the George Washington University Hospital and later that evening at a banquet in his honor at the Officers Club of the Walter Reed Army Medical Center.

COMMITTEE FOR THE CELEBRATION OF JAMES WINSTON WATTS' SIXTIETH BIRTHDAY

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Temporal Epilepsy: Deep Electrodes and Amygdaloidectomy*

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HUGHLINGS JACKSON[1] wrote: "The first question in my mind is not: Is it a case of epilepsy? But, where is the lesion permitting occasional excessive discharge?" Since there are many epileptic forms which are not controlled by medical treatment, the criterion of Hughlings Jackson acquires a great importance, not only for a better understanding of the mechanism of epilepsy but also to select the adequate surgical treatment of patients suffering from focal epilepsy.

Studies of the correlation between the clinical and electroencephalographic manifestations permit the localization of the source of epileptic discharges as being in the cortex and subcortical structures.

Lennox[2] pointed out that several of the focal epilepsies involved lesions of the limbic system, principally the temporal lobe, and he suggested the term "temporal epilepsies." Since at times the focus is located in other areas, Gibbs and Gibbs[3] and Lennox[2] adopted the term psychomotor epilepsy for those types of epilepsy in which the automatism and psychic components predominate.

In psychomotor epilepsies the common denominator is a pattern of movements that seems to be purposeful or learned rather than primitive muscular contractions.

The physiologic and clinical studies have placed the principal focus of psychomotor epilepsy in the limbic system.[4, 5]

Anatomic considerations of the limbic system. Most of the phylogenetically old cortex is contained in the great limbic lobe of Broca. This lobe is found as a common denominator in the brain of all mammals. The name limbic lobe is descriptive of the fact that this lobe surrounds the brain stem (figure 1).

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* Presented at a special Scientific Symposium, March 13, 1964, which was held in honor of Dr. James W. Watts' Sixtieth Birthday at the George Washington University Hospital, Washington, D.C.

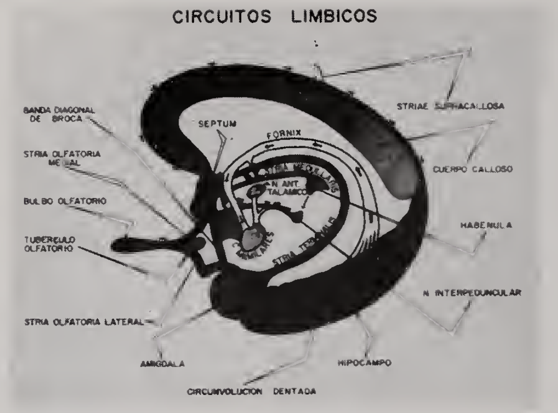
CIRCUITOS LIMBICOS
BANDA DIAGONAL DE BROCA
STRIA OLFATORIA MEDIAL
BULBO OLFATORIO
TUBERCULO OLFATORIO
STRIA OLFATORIA LATERAL
AMIGDALA
CIRCUNVOLUCION DENTADA
HIPOCAMPO
N INTERPEDUNCULAR
HABENULA
CUERPO CALLOSO
STRIAE SUPRACALLOSA
SEPTUM
FORNIX
N ANT TALAMICO
STRIA MEDULLARIS
MAMILARES
STRIA TERMINALIS

FIG. 1. Limbic system showing its connections (labeling in Spanish).

The structures associated with the limbic cortex include the hippocampus, the septum, the midline and anterior thalamic nuclei, and parts of other basal ganglia. Also it has close association with the habenular and interpeduncular nuclei. Nauta et al[6] have shown that the midforebrain bundle is a multilane highway for the reticular formation of the midbrain. From the limbic midbrain area there are ascending pathways to the hypothalamus, further forward the stream turns to the region of the amygdala, and from the amygdala fibers distribute to the limbic cortex of the frontotemporal cortex (figure 2).

Experimental focal epilepsy of limbic origin. The technique of chronic implanted electrodes permits the study of focal epilepsy provoked by excessive discharge of limbic structures.

Stimulation of the pyriform cortex or the underlying amygdala provokes deviated movements of contraversion, which can be accompanied by abnormal tonic or clonic movements. Such complex gestures are apparently due to abnormal sensations involving the buccofacial region or the extremities (licking of the lips, lifting and shaking a jaw).

Movements with a feeding significance (lapping, mastication, etc.) and changes in the autonomic sphere (pupillary dilatation, respiratory changes, circulatory changes, micturition and defecation) may be observed.

In the electroencephalographic recording following the electrical stimulation of the amygdala there are observed "after-discharges" in the same stimulated nuclei, as well as in the contralateral amygdala and related structures of the limbic system, and sometimes this "after-discharge" is transmitted to the isocortex. Propagation of this discharge may be either simultaneous or successive, first from the amygdala to temporal and septal structures, then to posterior hypothalamus and the frontal cortex.

The injection of alumina cream produces very similar effects to those described for the electrical stimulation, with seizures in the cat similar to psychomotor epilepsy. Discharges may occur on the same or opposite side of the lesion and sometimes predominate on the contralateral side. They are never bilateral nor synchronous. Sometimes by means of EEG activation it is possible to detect the actual source of epileptic discharge in clinical epilepsy.

The ablation of the epileptogenic focus on the side of the lesion does not necessarily lead to disappearance of the contralateral discharge, which persists several months after operation. This phenomenon probably results from the bombardment of the lesion to the homologous normal side, producing the long-lasting discharge.

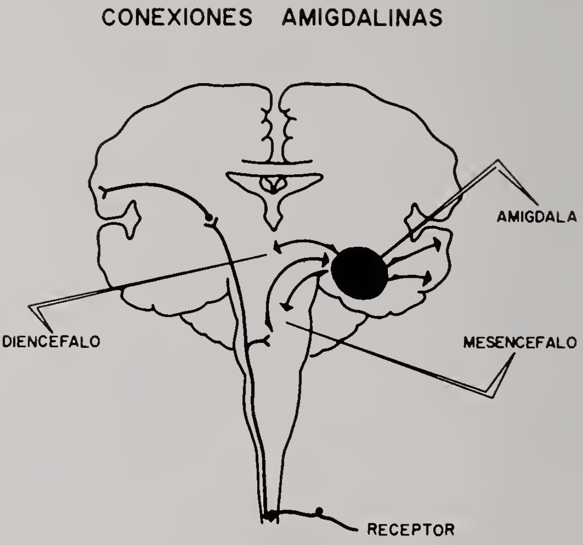
CONEXIONES AMIGDALINAS
AMIGDALA
DIENCEFALO
MESENCEFALO
RECEPTOR

FIG. 2. Connections of the amygdaloid nucleus.

Patients with focal epilepsy usually have a conspicuous organic cerebral lesion. In psychomotor epilepsy true focal lesions are usually not seen because the lesions are diffuse and located deep in the cortex and subcortical structures.[7]

The epileptogenic lesion may or may not coincide with the EEG focus. The existence of an EEG spike focus is always a valuable criterion for localization of partial epilepsy, but only as an argument in relation to the clinical facts. A spike focus in EEG is always a useful finding for the neurosurgeon who uses it in judging where the epileptic focus probably lies, but the choice of the area to be removed depends on the clinical and anatomicophysiologic correlation.

Based upon the previously mentioned experimental and clinical data of the role of the amygdaloid complex in the psychomotor epilepsy, we operated on 17 patients with this type of seizure since they could not be treated with drugs. In 6 patients with a unilateral temporal focus (EEG, angiogram, PEG) the temporal pole was ablated. Good results were obtained in 3 patients, and a tendency to increase the interval between crises (seizures) was observed in the remaining 3 (as it has been the experience of others[6-10]).

In 11 patients with a temporal focus but no other abnormal findings in the angiogram and pneumoencephalogram the amygdala was explored and ablated. Six out of the 11 patients improved their clinical manifestations, but the EEG continued showing slow waves. The remaining 5 patients continued with frequent seizures. This fact made us suspect the possibility of contralateral or bilateral lesions in spite of the predominance of the EEG focus. So now we are using implanted multipolar electrodes in both temporal lobes to secure the surgical treatment (figure 3).

We have operated on 7 patients in which the regular EEG showed bitemporal foci, even though 1 of them showed abnormal angiographic and air contrast unilateral findings.

With deep electrodes we obtained the coincident and good orientation to find a subcortical small astrocytoma in 1 case and justification of amygdaloid ablation in the others whose postoperative evolution has been gratifying since only 1 had recurrence of some equivalent of the previous seizures (see table 1).

TABLE 1: Results in Temporal Epilepsy

Operation	No. of Patients	Results	
		Good	Null
Lobectomy	6	3	3
Amygdaloidectomy	11	6	5
Amygdaloidectomy with previous deep electrodes	7	6	1
Total	24	15	9

Conclusions

The precise diagnosis of localization, deepness, and extension of an epileptogenic focus can be established only by means of deep recording through implanted electrodes into the brain. The surgical indication for ablation of brain structures with no gross pathologic evidence can be established only by deep recordings. The technique is less harmful than a brain puncture for ventriculography, the multi-electrodes are finer than any neurosurgical needle, and the results are promising.

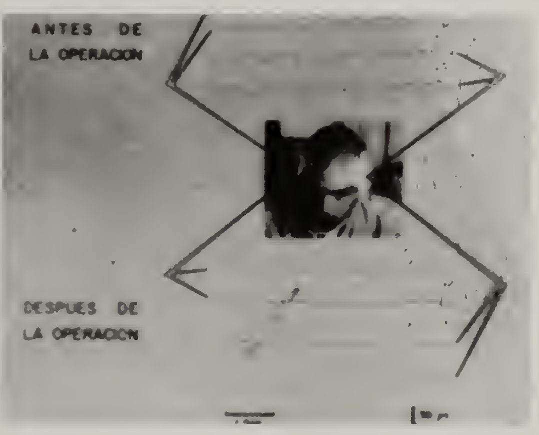

FIG. 3. Placement of electrodes and portions of tracings before and after surgery.

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Suboccipital Section of the Fifth Cranial Nerve in the Management of Trigeminal Neuralgia*

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1904 was a memorable year. In Lynchburg the Watts family demonstrated their new son, James Winston, and in Philadelphia C. H. Frazier and W. G. Spiller[1] demonstrated that the sensory root of the gasserian ganglion does not unite after its fibers are divided. Today we are gathered to celebrate the 60th anniversary of the first happy demonstration. The second resulted in the development of a rational surgical approach in the treatment of tic douloureux. Retrogasserian neurectomy by the temporal extradural route became, and has remained, the standard neurosurgical procedure for the relief of major trigeminal neuralgia.

The years brought some changes in these 1904 models. In 1925 James Watts reached his majority and enrolled as a freshman medical student at the University of Virginia. Charles Frazier[2] in that year modified retrogasserian neurectomy (by now he had done 430) by doing a subtotal resection of the sensory root, in an attempt to preserve the ophthalmic branch, and reported that he was almost always able to preserve the motor root. In the same year a report appeared in the *Bulletin of the Johns Hopkins Hospital* entitled "Section of the Sensory Root of the Trigeminal Nerve at the Pons."[3] The author was Walter Dandy, who had learned that the most serious postoperative liability of temporal retrogasserian neurectomy was keratitis; second, loss of the muscles of mastication on the side of surgery causing functional and cosmetic handicap; third, the occasional incidence of varying degrees of facial weakness, and, finally and rarely, epilepsy as a result of temporal lobe injury.

It can be agreed, with some validity, that a well performed differential posterior root section with sparing of the motor root would avoid most of these complications. Certainly Frazier,[4] Peet,[5] Adson,[6] and Stookey[7] amassed a vast clinical experience with this operation and became masters of its technique. Today, with dilution of tic patients among the many more neurosurgeons in any community and with the effectiveness of diphenylhydantoin (Dilantin®) therapy in the medical management of the disease, it has become increasingly difficult for the young neurosurgeon to become adept in the performance of the temporal extradural procedure. It remains a fairly simple operation to do but, in my opinion, quite a difficult operation to do correctly, and I would add to Dandy's list of liabilities[8]: (a) the frequent necessity for reoperation because of recurrence of pain due to insufficient completeness of sensory root section, (b) inability to preserve the motor root, (c) loss of frontalis muscle function because of injury to the facial nerve in the temporal scalp, (d) bleeding into the middle ear via zygomatic air cells causing alteration in hearing, usually temporary, and (e) occasional disastrous loss of orientation with injury to the cavernous sinus (as in 1 patient who developed pulsating exophthalmos several days after an unusually bloody tic operation and whose subsequent arteriogram showed a cavernous-carotid fistula). Happily, almost any manipulation of the ganglion or sensory root seems to result in temporary pain relief; witness the initial enthusiasm for operations of posterior root "decompression," "compression" of the posterior root and ganglion, and "combing" of the ganglion. The incidence of recurrence of pain after these operations has been high.

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Because of our dissatisfaction with results after temporal retrogasserian neurectomy, the subtentorial approach described by Dandy[9] was tried. The initial operations were done upon patients with oral malignant tumors. Severance of the fifth and ninth nerves, posterior upper cervical rhizotomy, and medullary tractotomy were all done as one procedure. The ease with which the fifth nerve could be exposed and the sensory root cut encouraged us to treat all of our trigeminal neuralgia cases by section of the fifth nerve at the pons.

Our procedure is to do the patient in the sitting position under endotracheal anesthesia. A catheter is introduced into the bladder after the patient is asleep. Urea, 60–80 Gm., is given intravenously while a small unilateral suboccipital skin flap is turned extending from the mastoid prominence to the midline. The suboccipital muscles are divided with the electrocautery, and a motor drill is used to make a small craniectomy. It is not necessary to open the cisterna magna medially if urea is used. The dura is opened and the cerebellum elevated. The cisterna lateralis is opened. The eighth nerve and petrosal vein are located and the sensory root of the fifth nerve found between them at a somewhat deeper plane. It is elevated on a nerve hook and cut. The motor root can then be seen anterior to it. No attempt is made to do a partial section as Dandy did. The dura is closed and the scalp closed in 1 layer with vertical mattress sutures of wire. Our technique differs from his only in using the sitting position, urea, and total sensory root section. Our exposure is small since we do not have to go medially to open the cisterna magna. The operating time is usually 60 to 90 minutes, considerably longer than the 12 minutes in which Max Peet was reputed to be able to do a posterior root section but not much longer than it takes the average neurosurgeon to do the standard tic operation.

There has been no problem with the petrosal vein or with pontine or cranial nerve injury in our small series of cases. The most remarkable postoperative observation has been the variation in sensory loss over the face after complete section of the sensory root. In many cases there are only patchy areas of deep sensation loss, in others complete sensory loss including disappearance of the corneal reflex. There has been complete disappearance of pain in all cases even when sensation is retained. We have seen no keratitis or herpes, nor have patients complained of formicating paresthesias. This raises an interesting problem in functional neuroanatomy. Does the motor root carry sensory fibers? Are there accessory sensory fibers? Is an intact fifth nerve necessary for trigeminal neuralgia?

8 In summary, we are now doing suboccipital trigeminal sensory root section exclusively in the treatment of trigeminal neuralgia. We find the results reliable and reoperation unnecessary. The possibility of facial nerve injury and motor root division is circumvented. Anticipated dangers of bleeding from the petrosal vein and injuries to other cranial nerves or to the pons have not occurred. Urea and the sitting position have been well tolerated by elderly patients, and the somewhat longer operating time has been no handicap. The question of the pathway of retained sensation after the apparently complete trigeminal sensory root section suggests that our knowledge of the anatomy of the sensory root of the fifth nerve may be incorrect. The universal experience that almost any manipulation of the ganglion or posterior root of the trigeminal nerve results in temporary alleviation of pain suggests also that our knowledge of the physiology of the fifth cranial nerve is far from complete. It may be that when we meet here in 1974 we will have some of these answers.

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Experiences with Sympathectomy for Atypical Facial Neuralgia*†

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FACIAL PAIN has presented a problem for many years. Over 50 years ago Sluder first described a sympathetic type of facial neuralgia. His description, originally published in 1908 and again in 1918[1] and 1927,[2] seems much more suggestive of an allergic reaction, or hay fever, than it does of the facial neuralgia currently encountered. In 1928 Frazier[3] published a paper entitled "Atypical Neuralgia: Unsuccessful Attempts to Relieve Patients by Operations on the Cervical Sympathetic System." However, half of his 10 patients had been operated on previously for trigeminal neuralgia, and in most of the remaining group autonomic phenomena were not present. He carried out periarterial sympathectomies with superior and middle ganglionectomy. Horton, MacLean and Craig[4] in 1939 described histaminic cephalgia, emphasizing the regularity of attacks, unilateral lacrimation, conjunctival injection, edema of the nasal mucosa, and facial flushing. They were able to provide relief in a number of instances with histamine desensitization, but in the hands of others the results of this therapy have been, in general, less successful. In 1947 Gardner, Stowell and Dutlinger[5] first proposed the term petrosal neuralgia and were able to obtain relief in 25 per cent and improvement in 50 per cent of a group of 13 patients by resection of the greater facial petrosal nerve. Their work was confirmed to some extent by White and Sweet,[6] who were able to produce facial pain by stimulation of these nerves in the course of trigeminal rhizotomies. The procedure involves risk of facial paralysis, and its results have been somewhat unpredictable.

The facial pain syndromes which we have encountered range from the purely psychogenic problems, on the one hand, to those with clear-cut organic lesions on the other, including trigeminal neuralgia, malignant tumors of the face or sinuses, and clear-cut inflammatory processes. Between these 2 groups, however, are a number of patients basically tense and emotionally unstable who exhibit objective evidences of organic change between or during their attacks. The present report deals with a small series of such patients treated by periarterial sympathectomy.

TABLE 1: Summary of Material

Patients—6 male, 4 female
Ages 29 to 53 years
50 per cent—40–50
Duration of pain—½ to 45 years
Average—9 years

The material is summarized in table 1. Most of the 10 patients were between 40 and 50 years of age when first seen. The long duration of the attacks is noteworthy and indicative of the absence of any well defined therapy. From a psychologic standpoint relief is also most difficult to achieve under these circumstances.

TABLE 2: Characteristics of Pain

Occurrence in attacks, usually several hours
May be cyclic—3 to 4 times annually
Intense burning or aching
Diffuse—center about eye
Builds to crescendo and diminishes
Tense patients

As can be seen in table 2, the characteristics of the pain are similar to those described by Horton. We have also been impressed by the common pattern of the attacks with a gradual build-up of pain to a period of extreme severity, followed by gradual diminution.

Table 3 indicates the objective changes seen in these patients, usually during the attack. The occurrence of myosis and eyelid ptosis in 4 patients seems very suggestive of a partial Horner's syndrome and deserves emphasis.

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† Presented at a special Scientific Symposium, March 13, 1964, which was held in honor of Dr. James W. Watts' Sixtieth Birthday at the George Washington University Hospital, Washington, D.C.

TABLE 3: Objective Changes during Attacks

Unilateral lacrimation and conjunctival injection
Ptosis of eyelid and myosis
Unilateral facial sweating

The eye changes were sufficiently suggestive of oculomotor weakness to raise the question of intracranial vascular anomaly and to lead us to preoperative angiograms in 7 of the patients. These films were all normal (table 4). Procaine injections as a therapeutic test were unsatisfactory in general, possibly because of the difficulty in interrupting the autonomic fibers posterior to the carotid artery.

TABLE 4: Preoperative Studies

Angiograms: 7—all normal
Novocain® injections during pain attacks—7
(Poor correlation with final results)

The results are summarized in table 5. The assessment of pain relief is difficult and must depend upon the patient's satisfaction over an adequate period. In this series the long follow-up periods are noteworthy, varying between 6 months and 9 years, with an average of 5 years.

TABLE 5: Results

Good	5 patients
(One operated twice in 6 years)	
(One operated 3 times in 9 years)	
Fair	2 patients
Poor	3 patients
(No eye changes—2)	
(Unequal pupils—1)	

At these intervals half the patients were relieved. Two had recurrences after intervals of several years but obtained freedom from pain again after another sympathectomy.

Of some interest is the absence of pupillary or other objective changes in 2 of the 3 patients whose pain was unrelieved. The 3 patients in whom the procedure failed completely showed minimal or no objective change during their attacks of facial pain.

Comment

Previous studies of facial neuralgia, as well as the present review of 10 cases, indicate that the autonomic system is sometimes involved. The exact mechanisms are not clearly understood, but interruption of pathways at the sphenopalatine ganglion or the petrosal nerves has helped some patients. Our experience with attacks of severe face pain associated with unilateral autonomic changes suggests that these can be relieved in about half the cases by the much simpler and less hazardous procedure of pericarotid sympathectomy. Whether the 3 approaches represent alternative points of interruption of the same pathways or whether differing mechanisms are present in different patients is not certain.

Summary

A syndrome of atypical facial neuralgia, occurring in tense individuals and characterized by unilateral autonomic phenomena, has been described. In a group of 10 patients treated by pericarotid sympathectomy and followed for an average of 5 years satisfactory relief was obtained in 5.

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Sphenopalatine Neuralgia?*

Cure of Four Consecutive Cases by Removing the Petrosal Nerves and Superior Cervical Sympathetic Ganglion

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CHRONIC RECURRING HEADACHE syndromes occur so often in human experience that little concern is given to the usual discomfort by the sufferer or his attending physician. A cup or 2 of coffee or an aspirin tablet does the job of quieting the distress and seldom are normal activities interfered with. Occasionally, however, the symptoms become so agonizing and at such frequent intervals that medical relief is demanded. Severe total incapacity results over varying periods of days, months, and years, and at times relief can be obtained only temporarily and then with huge doses of narcotics and complete physical immobility.

From the great mass of headaches one may easily recognize a syndrome complex which is characterized by a boring ache over the maxilla, forehead, and eye socket which starts as a mild discomfort and which gradually builds up to intense discomfort associated with several or many associated subjective and objective manifestations. Many authorities on headache therapy have referred to such aggravation of symptoms as being "sphenopalatine neuralgia." In my personal experience with this syndrome I have failed to consistently stop this pain by alcohol injection or surgical removal of the sphenopalatine ganglion.

For the purpose of this discussion I have selected 4 consecutive patients who were treated and relieved by a combined surgical destruction of the petrosal nerves and the superior cervical sympathetic ganglion.

Each of these patients had pain constantly recurring in the same location, all were of a similar type, and all had symptoms common to the group. All had had pain of extreme severity and had suffered without relief for many months or years.

All 4 were treated on the assumption that the painful stimuli traveled over parts of the autonomic nervous system to the site or sites of conscious discomfort. If so, they should be relieved by interrupting the pathway or pathways from peripheral parts to the brain.

Report of Cases

Case 1. J.Y., a man aged 36, was first seen on April 27, 1961 with the complaint of pain in the left vertex, eye, ear and back of the head of 13 years' duration. The first attack lasted 4 years, then he was free of pain for 4½ years. It was then intermittently present for the next 4½ years with extremely violent attacks for the past 2 months. The pain was practically constant, with sudden exacerbations so violent that relief could not be obtained by medication. During the attacks he rolled on the floor and packed his head in hot water bags and ice caps. The pain was accompanied by redness, lacrimation of the left eye, and spots before the eyes.

Immediate hospitalization with therapeutic pneumoencephalography 8 days later was instituted. The presumptive diagnosis was sphenopalatine neuralgia which could not be controlled by drug therapy. Thirteen days after admission the superior cervical sympathetic ganglion was removed with no relief whatsoever. Eighteen days after admission the middle meningeal artery was cut and coagulated, the ganglion was lifted, the dura was stripped from the petrous bone, and the petrosal nerve and its hiatal opening was coagulated. Thin wisps of cotton were placed beneath the dura to discourage regeneration of the nerve elements.

The postoperative results were an immediate cessation of pain, dryness of the eye, complete paralysis of the face, dryness of the face, Horner's syndrome, and loss of taste at the tip of the tongue.

Five months after operation the patient was free of his old pain. He showed no return of function of the facial muscles. He had queer, barely describable discomfort in his ear and at angle of jaw on eating apples or peaches. Nine months after the operation he had good but not complete or perfect movements of the facial muscles. The strange minor pains on eating persisted but were not annoying.

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The patient has been followed since his treatment (3 years) through office visits until very recently. He has remained comfortable, the strange pains on eating, especially with the first mouthful of food, remain. He has worked steadily. The face has good strength, but there is considerable distortion of the facial expression through misdirected regeneration of the facial nerve fibers.

Case 2. H.G., a woman aged 47, was first seen on March 3, 1959 with the complaint of recurring minor headaches, usually with menstruation, for many years. It was seldom disabling. Violent pains started 18 months prior to her first visit. The discomfort has been across the forehead, and into the left eye and upper jaw. Pain was often more severe during the night and was often accompanied by stuffiness of the left nostril and redness and lacrimation of left eye.

Twenty-seven months later, after ineffective customary treatment with common headache remedies and tranquilizers, she was returned to me for reëvaluation. Her pain had gradually increased, and both she and her medical attendants were emotional wrecks.

The same operation performed in case 1, of destroying the petrosal nerves, was first completed. Again there was a facial paralysis but no relief from the pain.

Seven days later the superior cervical ganglion was removed. The pain immediately stopped, and to date (3 years later) the patient has had no recurrence although she has some pain of an entirely different character about the parotid gland region which is transient in type and always initiated by eating sour, hot or spicy foods. It always stops after the first bite or so and is not particularly annoying.

Case 3. M.S., a woman aged 63, was first seen on March 21, 1961 with the complaint of pain above and about right eye and temple and to some extent involving the entire right side of the head. The upper jaw and cheek were most severely affected. The attacks were often accompanied by lacrimation and stuffiness of the right nostril. Medical treatment had been only partially effective. The patient was continued on medical treatment.

Twenty months later she returned with her continuing violent upper-half headaches on the right side. On November 9, 1962 a combined operation for removal of the superior cervical sympathetic ganglion and the petrosal nerves was performed, because I had previously demonstrated the necessity of combining both procedures to obtain relief. There was no facial paralysis, probably because no coagulation was employed at the facial hiatus as in the first 2 cases, and pain relief was immediate and complete except for a new type of discomfort in the parotid region, which was transient and initiated by eating hot or sour foods. The patient has remained comfortable to the present date.

Case 4. M.G., a woman aged 34, was first seen on June 2, 1961 with the complaint of pain of 6 weeks' duration, supposedly starting with otitis media, in the left side of face, lower jaw and ear. It had been necessary for her physicians to give her large and frequent doses of narcotics and other drugs for comfort. Chronic alcoholic beverage addiction was a complicating problem.

Since a malignant lesion of the base of the skull near the ganglion was suspected, this region was explored (June 2, 1961). The foramen ovale was enlarged into the pterygopalatine fossa, the meningeal artery was sectioned, the ganglion was exposed, and all nerves between the ganglion and petrous bone about the facial hiatus were sectioned and coagulated. The operation was completed by sectioning the motor and sensory roots of the trigeminus. The pain continued with increased violence, requiring narcotics with the attacks and a considerable use of alcohol daily.

There was some suggestion that possibly the fifth sensory root had not been cut. This was repeated by a posterior approach on September 1, 1961 (3 months after the first operation). The symptoms remained unchanged.

Subsequently alcohol was injected into the sphenopalatine region without relief. This was preceded by procaine injections about the sphenopalatine and superior cervical ganglia without temporary relief.

On December 11, 1961 the left superior cervical sympathetic ganglion was removed. On February 1, 1962 she had pain over the parotid gland but was otherwise free of pain. On September 27, 1962 she had very little pain until she yawned or moved food toward her mouth. A deep breath would also cause pain in the parotid area. Once food was in the mouth the pain stopped. She was very tender over the parotid gland at times.

Between December 11, 1962 and January 21, 1964 she was not seen nor did she request a visit to me. On the latter date she was apparently free of her old pain, although she had queer superficial pains in the nature of paresthesias anterior to the external auditory meatus over a very tiny area. She still had minor discomfort on eating and stated she perspired profusely just above the ear when the pain occurred.

Although this patient was still drinking rather steadily it was obvious that this was done through habit rather than from an attempt to control discomfort.

Summary

Pain was relieved in 4 patients suffering from so-called "sphenopalatine neuralgia" only after the combined interruption of the petrosal nerves and resection of the superior cervical sympathetic ganglion.

(*Continued on page 304*)

Neurosurgical Experience with Echoencephalography*†

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ULTRASONICS has been utilized in medical diagnosis for about 20 years, and in the late 1940's its application to neurology was begun.[1-4] Earlier researchers employed sonic transmission techniques,[1, 4] but more recently investigators in Scandinavia,[5-10] Great Britain,[11-14] and the United States[15] have widened its scope in neurologic diagnosis by use of the pulse-reflection method, or echoencephalography.

Ultrasound

The general physics of ultrasound[16] and its medical applications[17] have been described in some detail recently, but pertinent details will be mentioned here. Sound waves are inaudible to humans and are described as ultrasonic at frequencies above 20,000 cycles/second. At such frequencies sound acts as longitudinal mechanical waves or periodic variations of pressure about a mean pressure, and analogies between the behavior of light and sound can be made, for example, its focus and reflection.

In traveling through any medium ultrasound is partly transmitted through the medium, partly absorbed by it, and partly reflected at interfaces of media of different densities. The reflection of an ultrasonic beam depends not only on differences in density but also on the speed of sound in each medium, the product of the 2 properties being described as the specific acoustical impedance of the particular medium, and written as dv, where d is the density of the medium, and v is the speed of sound in that medium. The proportion of reflection of ultrasound at the interface of media A and B is then described[10] by the reflection index R, as follows:

$$R = \frac{(m - 1)^2}{(m + 1)^2}$$

where

$$m = \frac{d(A) \times v(A)}{d(B) \times v(B)}$$

Pulsed ultrasound employed in medical diagnosis is of the range of frequency of megacycles/second and is produced through the inverse piezoelectric effect, whereby certain crystals and ceramics placed in an alternating electrical field are made to resonate at ultrasonic frequencies. Reception of ultrasonic echoes is achieved through the same crystal transducer by the piezoelectric effect, whereby rapid alternating mechanical compression and decompression of the crystal by the echoes result in the production of alternating electrical charges. Because of the reflecting angle and dispersal of the sound waves, the transducer only receives echoes from interfaces perpendicular to the ultrasonic beam. The echogram is depicted on a cathode ray tube, where it may be photographed.

Echoencephalography utilizes sound of 1.5 to 2.5 megacycles/second, with wave lengths of 1.5 mm. to 0.6 mm. These parameters have been chosen as an adequate compromise to the problems of ultrasonic penetration, absorption and resolution which the study of the brain presents.

The intensity of diagnostic ultrasound has been found[17, 18] to be well below the 1–3 watt/cm.^{2} commonly used in physiotherapy and of no hazard to the patient, the ultrasonic pulse lasting only a few microseconds, followed by a silence of several hundred milliseconds.

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* From the Division of Neurological Surgery, University Hospital, Baltimore, Md.

† Presented at a special Scientific Symposium, March 13, 1964, which was held in honor of Dr. James W. Watts' Sixtieth Birthday at the George Washington University Hospital, Washington, D.C.

Method

The echoencephalograph* (figure 1) is quite portable on a small rolling table and is easily transported to the bedside, emergency room, or wherever needed. The operator sits comfortably at the patient's side and performs the study.

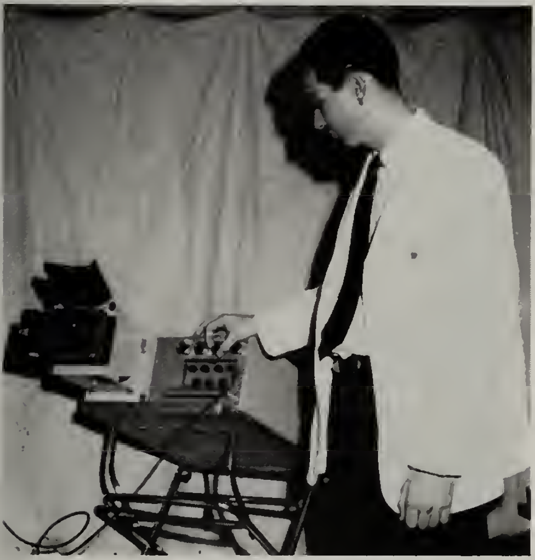

FIG. 1. Echoencephalograph.

Since ultrasound travels poorly through air a small amount of water or glycerine is used as a contact medium between transducer and scalp. The echogram is recorded from identical positions just above the ear, first on the right, then on the left, and these are recorded on the same photograph. Thus the relative positions of echoes from the same structures may be compared, abnormal echoes noted, and the displacement of the midline echo measured. The use of Polaroid film allows the immediate inspection of the echogram. The procedure is entirely without discomfort to the patient and is completed in a few minutes.

Interpretation

The echoes commonly observed in a normal echogram (figure 2) are those from the midline structures of the falx cerebri, septum pellucidum, pineal gland, third ventricle and longitudinal fissure; those from intracranial structures not in the midline, such as bony prominences, ventricular walls and insula; and those from the inner and outer tables of the skull and from the scalp. The experienced echoencephalographer can readily distinguish the various echoes and by adjusting the position of the transducer and the sensitivity of the echoencephalograph obtain the desired tracing. Abnormal echoes have been recorded from cystic cavities and from the borders of subdural hematomas.[19] We customarily estimate ventricular size and evaluate the position of the midline structures. Shift of midline structures, which is half the distance between the midline echoes, should be no greater than 3 mm. in the normal subject and ventricular width no more than one-fourth the diameter of the skull. X-ray films and echograms of various pathologic conditions are shown in figures 3, 4, 5, and 6.

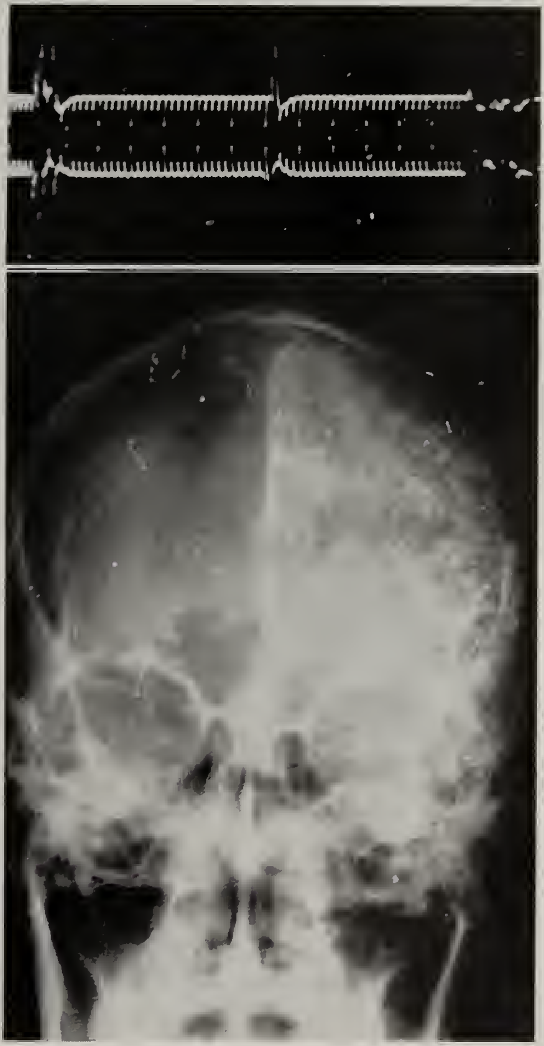

FIG. 2. Normal echoencephalogram (top); same patient's angiogram (bottom).

Case Material and Results

The following echographic results were obtained:

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* "Ekoline 20" is manufactured by Smith-Kline Precision Co., Philadelphia, Pa.

A. Normal echograms	139
1. Confirmed by angiography, air encephalography or both	99
2. Not subjected to special X-ray studies	40
B. Abnormal echograms	22
1. Confirmed by angiography, air encephalography, or both	20
2. Refuted by angiography	2

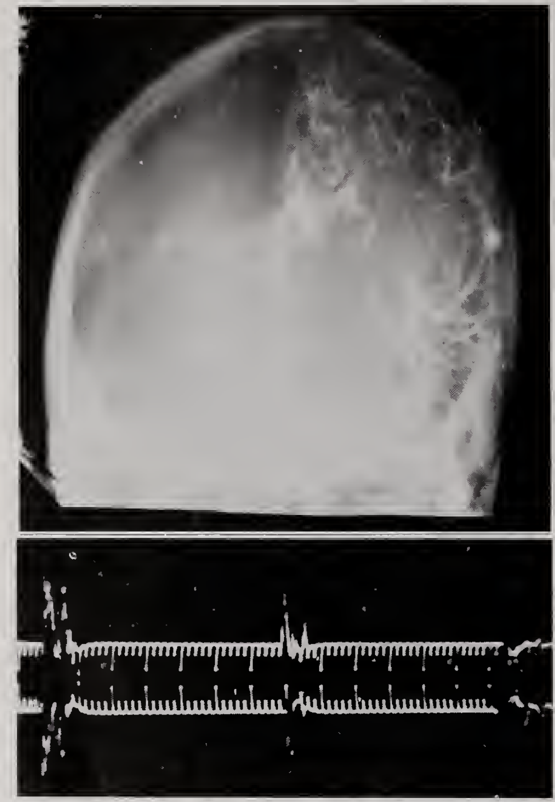

FIG. 3. Angiogram of arteriovenous malformation (top); no midline shift by echogram (bottom).

The workups, hospital course, and simpler studies performed on the 40 patients who had normal echograms and who were not subjected to angiography or air encephalography were deemed adequate to preclude the necessity of such studies. Of the cases with abnormal echograms 2 false positives are noted. Of the 20 patients with true abnormal echograms there were 15 with shift of midline structures and 5 with enlarged ventricles and normal position of midline structures. Sixteen of these patients were operated on, and the following pathologic lesions were found:

Gliomas	7
Metastatic carcinomas	2
Meningioma	1
Subdural hematomas	2
Cerebral cyst	1
Colloid cyst of third ventricle	1
Brain abscess	1
Negative posterior fossa exploration with marked ventricular dilatation on VEG	1

The pathologic lesions in the 4 patients who were not operated on were as follows:

Right carotid occlusion with hemisphere swelling	1
Internal hydrocephalus with meningomyelocele	1
Cavum septi pellucidi et cavum Vergae	1
Brain atrophy	1

Some idea of the accuracy of the technique may be obtained from the following:

1. Normal echogram, confirmed by X-ray	99 patients
a. Predicted correctly by echogram	100 per cent
2. Abnormal echogram, confirmed by X-ray	22 patients
a. Predicted correctly by echogram	90 per cent
3. Patients with normal echograms but no confirmatory X-ray studies	40 patients

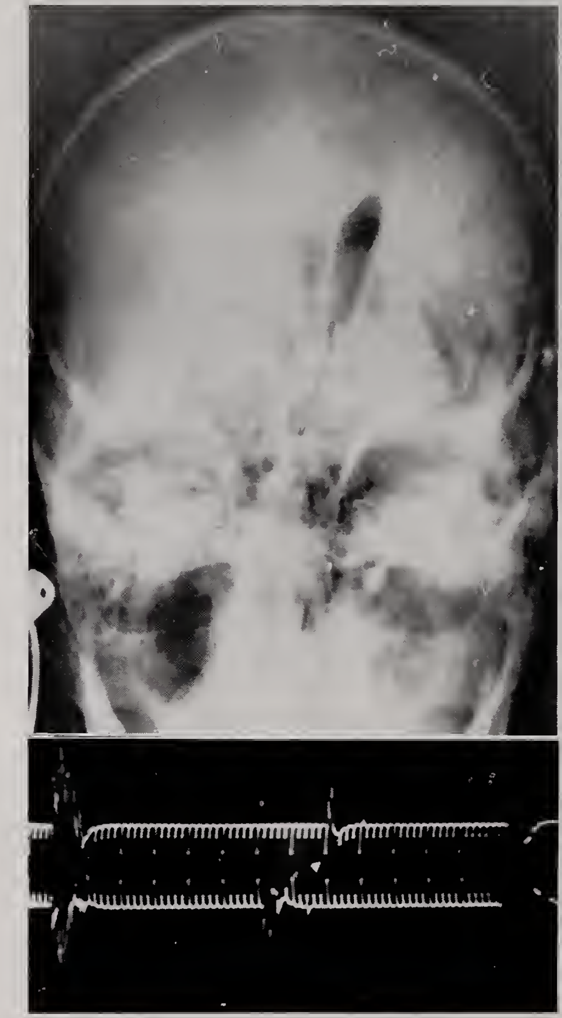

FIG. 4. Right parietal glioma—(top) pneumoencephalogram showing shift to left; (bottom) echogram showing shift to left.

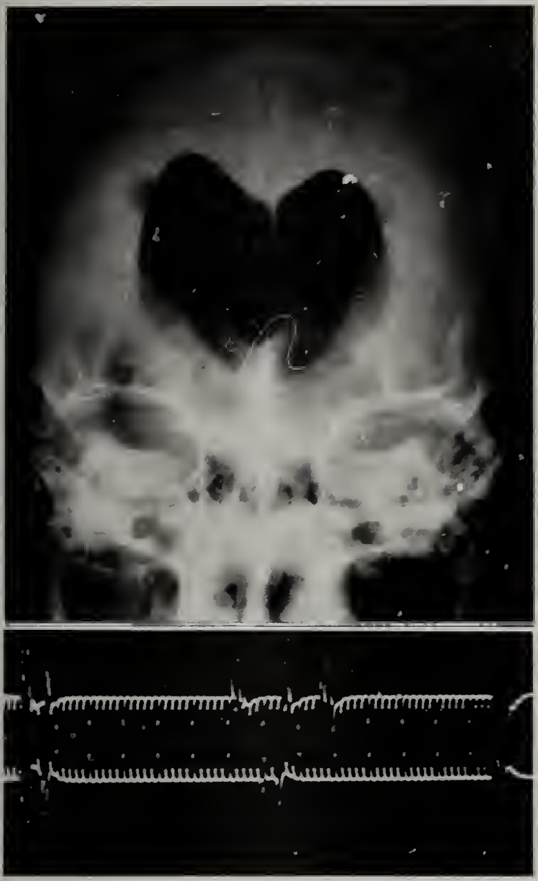

FIG. 5. Colloid cyst of third ventricle—(top) pneumoencephalogram showing ventricular enlargement; (bottom) echogram showing ventricular enlargement.

Comment

Echoencephalography is a reliable, easily performed adjunct to neurologic diagnosis. It is useful in determining the presence or absence of a unilateral supratentorial mass-lesion with shift of the midline structures and in estimating ventricular size. Symmetrical widening of the echo pattern with no shift of the midline structures is diagnostic of hydrocephalus, the cause of which may then be appropriately investigated. The echogram is also useful as an outpatient screening procedure in borderline cases in which the need for hospitalization and more elaborate study is only questionable. In following postoperative or traumatic patients for the appearance or resolution of brain shift the echogram is also of value. In conjunction with radioisotope brain-scanning echoencephalography may appreciably reduce the requirement for more difficult and potentially hazardous studies, such as angiography and air encephalography.

Summary

Echoencephalography has been employed as a diagnostic adjunct in 160 cases of suspected intracranial mass-lesions and in 1 infant with hydrocephalus. Results of these studies have been given, and comment has been made on the reliability and usefulness of this technique.

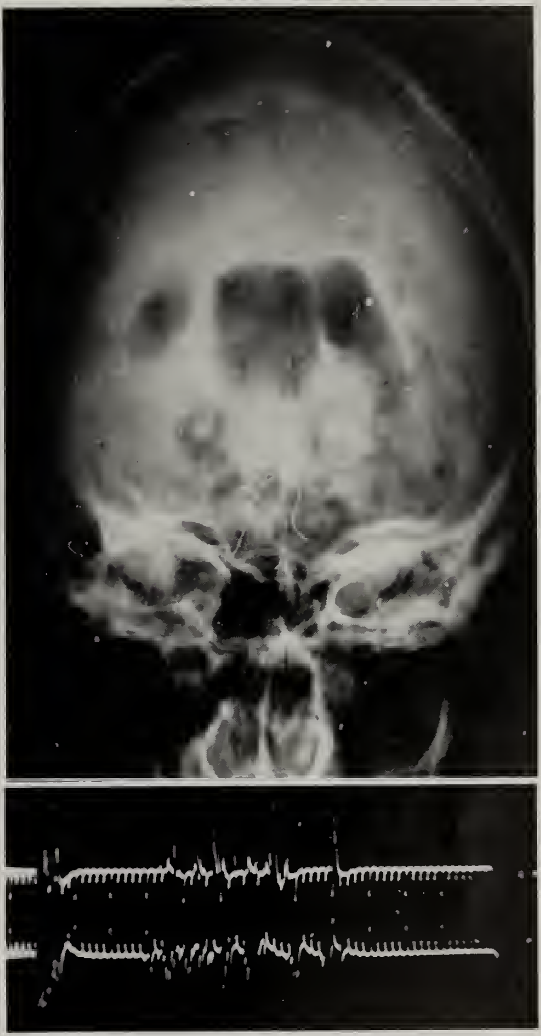

FIG. 6. Cavum septi pellucidi et cavum Vergae—(top) pneumoencephalogram showing ventricular enlargement; (bottom) echogram showing ventricular enlargement.

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(Continued on page 304)

Pitfalls of Lumbar Disc Surgery*

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During World War II the surgical treatment of military personnel for ruptured lumbar intervertebral discs was so discouraging that I was stimulated to institute clinical studies. This clinical investigation began on January 1, 1947, and the first 10-year period was concluded on December 31, 1956. Those patients who did not require surgical therapy were sent back to their referring physicians for treatment, but those who were operated on had free access to my office. Therefore, each patient was examined and was interviewed many times over a period of 10 years to 1 year. The case histories of 438 patients have thus far been reviewed. The complete results have been tabulated, but a careful study of those patients who obtained poor results is the purpose of this essay. The status of these patients as related to employment, costs of medical care, compensation, and impending litigation has been discussed in another paper.[1] A special effort has been made to establish the reasons for the poor results among this group of patients in order that the pitfalls of lumbar disc surgery may be defined and evaluated.

Results of Surgical Therapy

The patients who experienced excellent or good results can be assigned to a single group of satisfactory results. Those patients who constituted the group of poor results experienced inadequate benefits from the surgical treatment employed to justify the procedure (table 1).

The first group consisted of 392 patients who had never been operated on previously for a ruptured lumbar intervertebral disc and whose operation consisted of simple removal of the degenerated nucleus pulposus. Forty six or 11.7 per cent obtained poor results.

The second group of 28 patients had the combined operation of removal of the degenerated nucleus pulposus plus a procedure performed by an orthopedic surgeon to promote bone fusion. Two patients or 7 per cent of this group had poor results.

The third group of 18 patients had each undergone from 1 to 3 operations by other surgeons for a ruptured lumbar intervertebral disc. The surgical procedure performed on each of these patients consisted of unpinching the affected nerve root or roots. Four or 22 per cent of this group continued to have poor results.

The 3 groups constituted 438 patients, of whom 52 or 11.9 per cent experienced poor results after a single operation performed by me.

During this period 25 of the 52 patients who had experienced poor results were reoperated on. Furthermore, 5 and 7 patients who had initially obtained excellent and good results respectively required second operations. Thus, a total of 37 patients were selected for another operation.

TABLE 1: Results of Lumbar Disc Surgery

	Excellent	Good	Poor	Total
PRIMARY OPERATION FOR DISC REMOVAL ONLY				
Number	301	45	46*	392
Per cent	76.8	11.5	11.7	89.5
PRIMARY OPERATION FOR DISC REMOVAL PLUS FUSION				
Number	19	7	2	28
Per cent	68	25	7	6.4
ONE OR MORE PREVIOUS OPERATIONS BY OTHER SURGEONS†				
Number	6	8	4	18
Per cent	33	45	22	4.1
Number: all groups	326	60	52	438
Per cent: all groups	74.4	13.7	11.9	100

* 1 death.

† Type of operation by other surgeons:	Number
Incomplete: Patient developed shock	1
Simple removal of disc	7
Spinal fusion	7
Two previous operations, removal of disc only	2
Three previous operations with spinal fusion	1

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* Presented at a special Scientific Symposium, March 13, 1964, which was held in honor of Dr. James W. Watts' Sixtieth Birthday at the George Washington University Hospital, Washington, D.C.

Findings at Second Operation

There existed a lesion at the same level and on the same side in 17 patients or 46 per cent and at the same level but on the opposite side in 6 patients or 16.2 per cent. There existed a ruptured lumbar intervertebral disc at another level in 12 patients or 32.4 per cent. In 2 patients or 5.4 per cent of the group there had occurred excessive callus caused in each by the bone fusion procedure which resulted in pinching of a nerve root.

Thirteen patients or 35 per cent of the group of 37 had poor results after the second operation. The probable causes of poor results of the 13 patients after the second operation were as follows: Four developed arachnoiditis, 2 suffered with alcoholic hepatitis plus neurologic deficits, 2 developed causalgia of the sciatic nerve, and 5 exhibited severe psychiatric illness.

Comments

An accurate diagnosis was essential for successful surgical therapy. The history and neurologic examination were still supreme. The myelogram was confirmatory only; it was accurate in 82 per cent of all the patients operated on. The myelogram was of great value in establishing the level of the ruptured intervertebral disc, to determine if there was bilateral rupture of a single intervertebral disc, and to ascertain the existence of multiple ruptured intervertebral discs, as well as to exclude other space-occupying lesions within the spinal canal. During the first 3 years of this study it was general practice for the surgeon to remove the offending portion of the ruptured intervertebral disc only. Therefore, 14 patients who were reoperated on demonstrated a recurrence of the lesion on the same side and at the same level. This was interpreted as indicating an inadequate removal of the degenerated nucleus pulposus. Thereafter all the nucleus pulposus of the ruptured disc was removed, leaving only the annular ligament. The resulting space was filled with muscle tags or Gelfoam®.

At the reoperation of 2 patients there existed excessive perineural fibrosis resulting from an organized hematoma in each instance, thus exhibiting the hazard of incomplete hemostasis. There existed extensive intraneural fibrosis in each of 2 patients, resulting in a sciatic causalgia in each instance even though the nerve had been injected with normal saline and the epineurium had been incised. Subsequently it was discovered that this type of nerve lesion could be treated successfully only by cutting the nerve root. The resulting nerve deficit usually disappeared and the sciatic causalgia was eliminated.

Five of the 6 patients who had a ruptured disc at the same level but on the opposite side had complained of bilateral symptoms, but only the major symptoms had been evaluated. Subsequently all patients who had bilateral symptoms and signs were considered to require bilateral explorations.

Five of the 12 patients, each of whom had a ruptured intervertebral disc at another intervertebral level than the one found at the primary operation, had probably developed this lesion in the interim. The others could have had more than 1 ruptured intervertebral disc at the time of the first operation, but only 1 had been removed. This possibility when discovered prompted the use of routine myelography on all patients on whom surgical therapy was anticipated. It proved to be accurate in 82 per cent of the patients. The chief error consisted of a normal myelogram in the presence of a ruptured lumbar intervertebral disc. Therefore the possibility of multiple lumbar intervertebral discs could not always be excluded.

The 2 patients who experienced poor results following the combined operation of disc removal and bone fusion exhibited pinched nerves due to excessive callus formation. It is probable that a different bone fusion procedure could have been employed to prevent this complication.

The probable basis for the poor results of the 27 patients who were refused second operations were as follows:

Two had arachnoiditis; 1 had residuals resulting from spinal anesthesia; 1 died of an acute coronary occlusion on the eleventh postoperative day; 1 had Buerger's disease; 1 had Paget's disease; 1 had multiple sclerosis; 2 had alcoholic hepatitis; 1 committed suicide; and 1 veteran had a 25 per cent permanent partial disability prior to operation and was trying to get this disability increased. One patient had severe wound infection; 2 patients had severe nerve deficits which had been made worse by the operation; 2 had backache as a migraine equivalent; and 4 had backaches which were manifestations of chronic nervous tension with hypertonicity of all muscles. Seven patients had overwhelming sociologic and economic maladjustments. This group of patients with poor results and who did not qualify for reoperation illustrated the necessity for accurate diagnostic studies and critical appraisal of the sociologic, economic, and psychiatric status of each individual on whom surgical therapy for a ruptured lumbar intervertebral disc may be contemplated.

Arachnoiditis was occasionally a complication of a ruptured lumbar intervertebral disc, but it did not always cause disability. In 2 patients the arachnoiditis was arrested following surgical therapy, and both returned to full duty.

There appeared to develop no regeneration of nerve tissue in those patients who were suffering with alcoholic hepatitis. If a patient cannot forego imbibing alcoholic beverages before surgical therapy because of alleged pain, he will increase the consumption of alcohol after operation because of alleged increase in his discomfort.

Summary

The case histories of 438 patients operated on for ruptured lumbar intervertebral discs during the 1947–1956 period have been reviewed. Three hundred and eighty-six patients or 88 per cent experienced satisfactory results, and only 12 per cent obtained poor results after a single operation. Thirty-seven patients were reoperated on during this interval, and 24 or 65 per cent had satisfactory results and 13 or 35 per cent obtained poor results. Thus the percentage of poor results increased with each succeeding operation. The satisfactory results of the entire group was increased to 90.7 per cent, and the poor results were reduced to 9.3 per cent after maximal efforts of therapy.

The pitfalls of lumbar disc surgery have been studied and discussed. All pitfalls, however, cannot be avoided because the dedicated surgeon must continue to treat those patients with concomitant diseases, the alcoholic and the maladjusted, even though he knows that the results will be unsatisfactory. One has the solace that few surgical procedures effect a higher satisfactory result than the 90 per cent which was accomplished in this group of 438 patients.

Reference

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Homocystinuria Cases Wanted for Clinical Center Study

The cöoperation of physicians is requested in the referral of patients with homocystinuria, an inborn error of metabolism affecting the conversion of methionine to cysteine, for a study currently in progress at the Clinical Center by the National Institute of Arthritis and Metabolic Diseases and the National Institute of Mental Health.

Homocystinuria is a recently described hereditary disorder characterized clinically by mental retardation, dislocation of ocular lenses, sparse blond hair, genu valgum, and positive nitroprusside test on urine (described below).

In patients with these conditions, urinary excretion of the amino acid homocystine is increased and the plasma concentrations of methionine and homocystine are elevated. It has been shown that the liver of a patient with homocystinuria was deficient in the activity of the enzyme, cystathionine synthetase, which catalyzes the conversion of homocysteine to cystathionine (Science, 1964, **143,** 1443). Additional patients are needed to carry out studies of the biochemical consequences of the disorder and to develop therapeutic measures if possible.

Patients with homocystinuria may be detected by suspecting all children with mental retardation, dislocated eye lenses, or both, and by performing the sodium nitroprusside screening test on a random urine specimen: Mix 5 ml. of urine with 2 ml. of 5 per cent sodium cyanide solution, allow the mixture to set for 10 minutes at room temperature, then add several drops of 5 per cent sodium nitroprusside solution (J. Biol. Chem., 1930, **86,** 317). If the urine contains cyst(e)ine or homocyst(e)ine, a magenta color will develop after addition of the nitroprusside and further study is in order. Analysis of the urine for individual amino acids can confirm the screening test.

The duration and nature of the studies will be arranged individually with referring physicians and will depend on the state of the patients and their willingness and ability to cöoperate. After completion of the study patients will be returned to the care of their referring physicians, who will receive a complete narrative summary.

Physicians who wish to refer proven or suspected cases of homocystinuria for study please write or telephone Dr. Leonard Laster, National Institute of Arthritis and Metabolic Diseases, Bethesda, Md. 20014; telephone 496–4201.

The Syndrome of Arteriovenous Anomalies of the Fusiform Gyrus with Report of Four Cases*

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FOUR OF MY PATIENTS having cerebral arteriovenous anomalies showed clinical signs so similar that it seems worthwhile to draw attention to the picture presented by them.

The similar clinical features are headache, upper quadrantanopsia with long-tract signs on the side of the body opposite to the quadrantanopsia, and subarachnoid hemorrhage (figure 1). Angiography revealed an A-V anomaly involving the fusiform gyrus of each patient contralateral to the quadrantanopsia and ipsilateral to the long-tract signs.

Case 1. In December 1952 a 26-year-old woman had a sudden onset of severe headache followed by semicoma lasting a week. A left lateral rectus palsy was noted. Lumbar puncture showed bloody spinal fluid. Two weeks later sudden severe headache recurred without disturbance of consciousness or evidence of fresh blood in the subarachnoid space. Examination at that time revealed slight dilatation of the left pupil, hypesthesia over the left trigeminal distribution, dysesthesia of the left side of the body, and weakness of the left arm and leg.

Fourteen months later (February 1954) a severe headache recurred which lasted about a week. The patient was in her fifth month of pregnancy at that time. Because of the history of previous subarachnoid hemorrhage her obstetrician referred her for consultation. Examination in March 1954, 15 months after the original attack, revealed slight distention of the veins of the fundi, a congruous right superior quadrantanopsia, dysesthesia of the left side of the face and body, weakness of the left arm extensors and hip flexors, and increase of left-ankle and knee tendon reflexes.

Vertebral angiography disclosed an arteriovenous malformation on the under surface of the left temporal lobe overlying the petrous ridge.

The malformation and an adjacent cyst were removed from the left fusiform gyrus. Postoperatively the right quadrantanopsia persisted. The left spasticity and dysesthesia were much less severe.

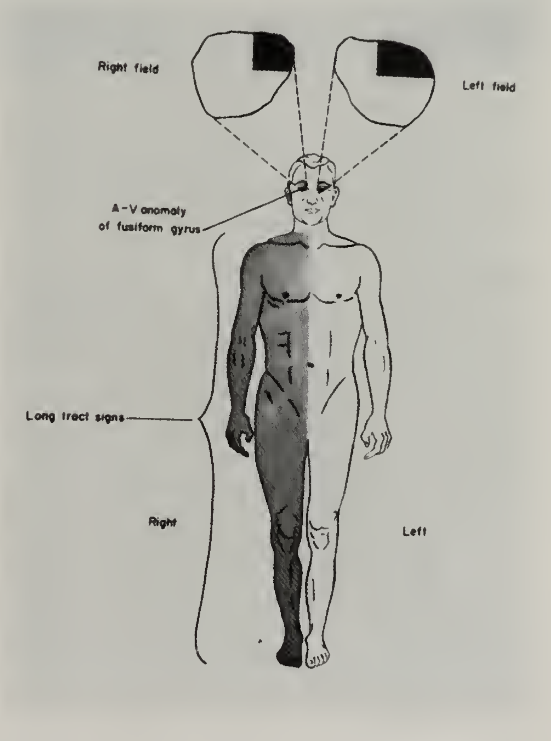

FIG. 1. Schema of physical findings in syndrome of arteriovenous anomaly of fusiform gyrus.

Case 2. A 38-year-old woman in July 1953 suffered excruciating headache followed by visual dimness, left facial numbness, loss of consciousness, and, upon regaining consciousness, weakness of the left hand. Lumbar puncture revealed bloody spinal fluid. At that time no further treatment or investigation was carried out. In June 1954 she was seen because of a complaint of weakness and aching of the left arm. Examination at that time revealed, in addition, a congruous right upper quadrantanopsia. In September 1954 vertebral angiography demonstrated a small 1 by 1.5 cm. arteriovenous anomaly in the left fusiform gyrus. The anomaly was removed. One month later there was no weakness or complaint regarding the left upper extremity. The quadran-

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* Presented at a special Scientific Symposium, March 13, 1964, which was held in honor of Dr. James W. Watts' Sixtieth Birthday at the George Washington University Hospital, Washington, D.C.

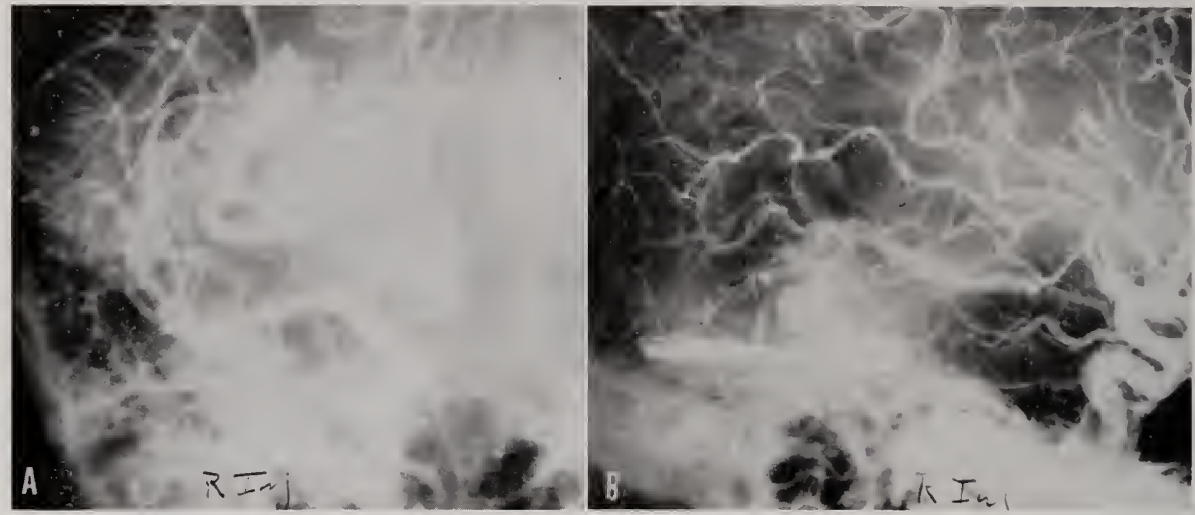

FIG. 2. Arteriogram of case 3: (A) AP left; (B) lateral right view showing arteriovenous anomaly of right fusiform gyrus.

tanopsia was reported as "being decreased," but there is no chart of this in her record.

Case 3. On October 31, 1955 a previously healthy 22-year-old white man had onset of pain behind the right eye with generalized headache and soreness in the neck followed by numbness and tingling in the fourth and fifth digits of the right hand. He became nauseated and vomited but did not lose consciousness. Lumbar puncture drew grossly bloody spinal fluid. The corneal reflex was decreased on the right. There was nystagmus on right or left lateral gaze. There was a complete congruous left upper quadrantanopsia. Carotid angiography revealed an arteriovenous anomaly of the right fusiform gyrus (figure 2) which was incompletely removed as demonstrated by subsequent angiography. The visual field defect remained unchanged.

Case 4. A 33-year-old woman in February 1955 had a subarachnoid hemorrhage with mental confusion during the fifth month of pregnancy. Slight nystagmus upon either lateral gaze was noted. The deep tendon reflexes were more active on the right than the left. Carotid angiography revealed no lesion at that time. The patient was allowed to come to term, and delivery by cesarean section was accomplished.

On April 12, 1956 there was recurrence of the subarachnoid hemorrhage. At that time neurologic examination revealed slight weakness of the right upper and lower extremities with slight increase of the deep tendon reflexes on the right. There was a left upper incongruous homonymous hemianopsia. Vertebral angiography demonstrated an arteriovenous malformation in the right fusiform gyrus area. This lesion was removed on July 6, 1956. The incongruous quadrantanopsia remained essentially unchanged. There was a transient left mild hemiparesis.

Discussion

The findings common to all of these patients were severe headache with verified subarachnoid hemorrhage and upper quadrantanopsia contralateral to the signs of long-tract involvement.

An additional finding not present in all patients was trigeminal hypesthesia on the same side of the body as the lesion. Each patient had an arteriovenous anomaly of the fusiform gyrus ipsilateral to the long-tract signs and contralateral to the quadrantanopsia (figure 3).

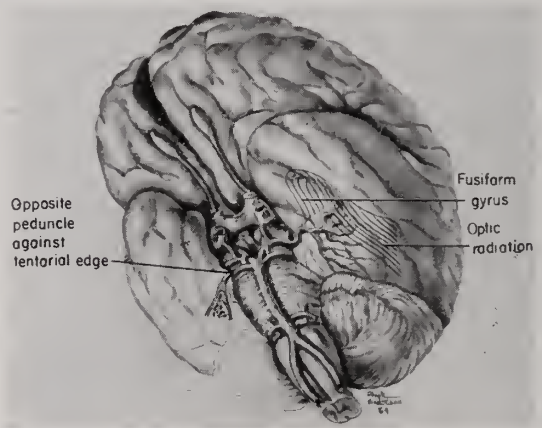

FIG. 3. Semidiagrammatic representation of the basic anatomic features underlying the syndrome of A-V anomaly of the fusiform gyrus.

Some conjectures regarding the quadrantanopsia are offered. There may be destruction of Meyer's loop[1] as it courses posteriorly above the fusiform gyrus. Another possibility is that the blood supply to the fillet of Meyer's loop as it leaves the lateral geniculate body may be com-

(*Continued on page 304*)

Reduction of Intracranial Pressure by THAM during Brain Surgery*†

Preliminary Study

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NEUROSURGEONS and anesthesiologists continue to search for safer methods of controlling intracranial pressure during brain surgery. Numerous methods in use today have been described in a study on the development of recent thoughts on intracranial pressure and the blood-brain barrier.[1] The present report concerns the use of the drug THAM‡ for the purpose of reducing intracranial pressure through its buffering action on carbon dioxide.

THAM is the chemical compound tris(hydroxymethyl)aminomethane. This compound is a type of organic weak base known as an amine buffer. Since H_2CO_3 is by far the most common acid physiologically available, THAM has been studied for its value in counteracting both metabolic and respiratory acidosis in various clinical and experimental situations.[2, 3] In brief, THAM effects binding of CO_2 as bicarbonate:

$$CO_2 + H_2O \rightleftharpoons H_2CO_3 \rightleftharpoons HCO_3^- + H^+ \xrightleftharpoons{(CH_2OH)_3CNH_2} (CH_2OH)_3CNH_3^+ + HCO_3^-$$

The latter 2 products are excreted by the kidneys. For the specific effects of THAM on urine output, water and electrolyte balance, acid-base balance, and metabolism, the reader is referred to the references.

The potent effect of CO_2 excess as a cause of increased intracranial pressure and the value of methods (tracheostomy, hyperventilation) to reduce CO_2 pressure in the blood perfusing the brain is well documented.[1] Table 1 describes how hypercapnia may elevate intracranial pressure.

TABLE 1: Methods by Which Hypercapnia May Increase Intracranial Pressure

↗ CO_2 → ↗ intracranial pressure as follows:
- I. ↗ Intracranial blood volume—
  - vasodilatation—
    - direct effect of CO_2 on blood-vessel wall
- II. ↗ Brain water content (?)
  - A. ↗ Capillary hydrostatic pressure—
    - ↗ systemic BP from adreno-sympathetic stimulation
  - B. ↗ Osmotic activity inside and outside of brain cells
    - 1. Increased permeability of blood-brain barrier to solutes
    - 2. Release of ions normally bound to brain-cell wall

On the other hand, infusion of THAM as a 0.3 molar solution (isomolar with blood) will reduce pCO_2 and raise the pH in arterial blood, intracellular fluid, and cerebrospinal fluid (CSF) effecting maintenance of a normal electroencephalogram (EEG) and CSF pressure in animals breathing CO_2, hypoventilating, or undergoing apneic diffusion oxygenation when compared with the control animals.[4-14] While THAM may be able to enter cells, it cannot adequately cross the blood-brain barrier.[15] Hence, reduction of brain CO_2 must be a result of diffusion of CO_2 from the brain tissues into the blood stream since THAM causes the blood CO_2 to be tied up as a bicarbonate. Also, some account must be taken of any osmotic activity of the drug on the blood side of the blood-brain barrier. Its osmotic activity is much less than urea or mannitol in their usual dosages (table 2).

While it is safe to say that the factors involved in raising intracranial pressure are multiple in cases of brain tumors and brain surgery,[1] the large part played by metabolism and CO_2 is

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† Presented at a special Scientific Symposium, March 13, 1964, which was held in honor of Dr. James W. Watts' Sixtieth Birthday at the George Washington University Hospital, Washington, D.C.

‡ Kindly supplied to us as Talatrol by Abbott Laboratories, North Chicago, Illinois.

TABLE 2: Osmotic Relationships of THAM to Urea and Mannitol

	Urea	THAM	Mannitol
Dosage range (Gm./Kg.)	0.5–1.5	0.3–0.5	1.0–4.0
Per cent concentration I.V.	30	3.6	20
Molar concentration I.V.	5.0	0.3	1.1
Molecular weight (approx.)	60	120	180
Relative osmotic activity	3	1.5	1
Potential to enter cell	100%	30%	Nil
Potential to enter CNS	Nil	Nil	Nil

becoming more apparent. The use of automatically controlled passive hyperventilation as emphasized by Lundberg, Hayes, Slocum and others[1, 16, 17, 18] and tracheostomy[1, 18, 19, 20] for reduction of intracranial pressure are gaining recognition as valuable methods of reducing intracranial pressure. While maintenance of arterial CO_2 pressure at about 30 mm. Hg (normal, 40 mm. Hg) during brain surgery seems to give optimal brain relaxation,[16, 17] pCO_2 levels at 12–20 mm. Hg have been used without apparent brain injury from vasoconstriction and hypoxia and without electrolyte disturbance.[21] However, as arterial pCO_2 drops below 20-30 mm. Hg, cerebral hypoxia becomes a greater stimulus to increase cerebral blood flow than is hypocapnia to decrease it.[22]

Procedure

Twenty-two patients (all adults weighing 55–84 Kg.) were selected for intravenous infusion of THAM during craniotomy (tables 3 and 4). Except for the last patient (case 22) who received a 2-molar hypertonic solution, all patients received 500 to 1,000 c.c. of 0.3 molar THAM solution (which contained lyophilized 36 Gm. = 300 mEq. THAM, 1.75 Gm. = 30 mEq. NaCl, and 0.37 Gm. = 5 mEq. KCl dissolved in 1 liter of 5 per cent D/W) in ½ to 3 hours. Half a liter was given by the time the dura was opened. Although it was intended to give a total dose of 0.5 Gm. of THAM per Kg. body weight, in actuality a little less than this was usually given. Infusions were given by venous intracatheter; and since the drug is a diuretic, a Foley catheter was inserted before surgery. Because of the pronounced respiratory depression (drop in tidal volume, not rate) caused by THAM the infusion was not started until after the patient was intubated. General anesthesia was used (N_2O, O_2, halothane, and thiopental after atropine and pentobarbital premedication with succinyl choline for intubation); case 10 was done under local lidocaine anesthesia (intubated via tracheostomy) and cases 6, 7, 8, 10, 17 and 22 had no halothane. The patients' respirations were controlled man-

TABLE 3: Cases and the Physiological Variables Studied

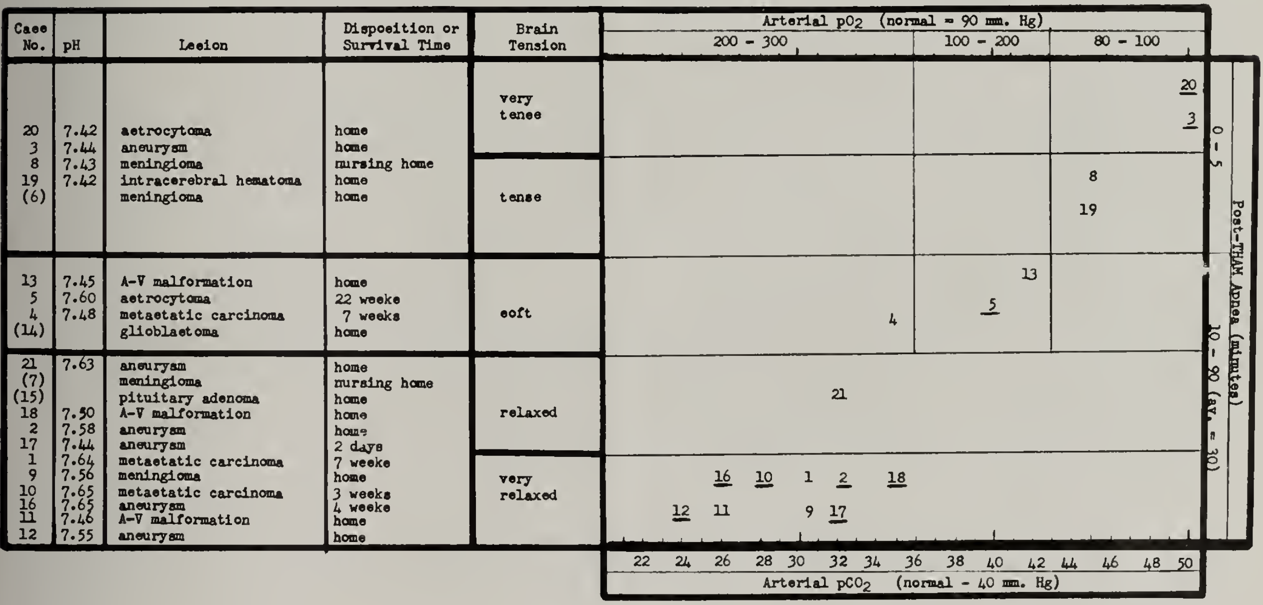
Case No.	0.3M. THAM Dosage Gm. c.c. Hrs.	Post-THAM Apnea, Minutes	pH	pCO_2 mm. Hg	pO_2 mm. Hg	CSF Drainage	Brain Tension at Surgery
1	28.8 = 800/2.0	90	7.64	30	200	None	Very relaxed
2	28.8 = 800/2.0	60	7.58	32	210	Chiasmatic	Very relaxed
3	18.0 = 500/0.5	3	7.44	50	90	Spinal, chiasmatic	Very tense
4	21.6 = 600/1.5	30	7.48	35	200	None	Soft
5	28.8 = 800/3.0	60	7.60	40	150	Ventricular	Soft
6	28.8 = 800/2.0	10	—	—	—	None	Tense
7	36.0 = 1000/2.0	5	—	—	—	None	Relaxed
8	28.8 = 800/2.0	5	7.43	45	80	None	Tense
9	21.6 = 600/2.0	15	7.56	30	300	None	Very relaxed
10	36.0 = 1000/2.5	20	7.65	28	254	Ventricular	Very relaxed
11	21.6 = 600/2.0	10	7.46	26	310	None	Very relaxed
12	18.0 = 500/2.0	30	7.55	24	290	Spinal, chiasmatic	Very relaxed
13	28.8 = 800/2.5	10	7.45	42	180	None	Soft
14	28.8 = 800/2.5	15	—	—	—	None	Soft
15	18.0 = 500/1.5	*	—	—	—	Spinal, chiasmatic	Very relaxed
16	25.2 = 700/2.5	30	7.65	26	300	Chiasmatic	Very relaxed
17	21.6 = 600/2.5	*	7.44	32	280	Chiasmatic	Very relaxed
18	21.6 = 600/2.5	15	7.50	35	225	Spinal	Very relaxed
19	21.6 = 600/2.0	0	7.42	45	100	None	Tense
20	21.6 = 600/2.0	1	7.42	50	85	Chiasmatic	Very tense
21	28.8 = 800/3.0	15	7.63	32	280	None	Relaxed
22	24.0 = 100/2.0†	20	7.62	38	80	None	Very relaxed

* Succinyl choline still running.

† Exception: case 22 is 2-molar solution.

ually by the anesthesiologist. This study intended to deal with conditions without the advantage of an automatic ventilator which in itself will reduce intracranial pressure. The head was elevated 20-30° (except in cases 6 and 7 in which the position was horizontal). No hypothermia was used. Except in 1 case (case 20) no other osmotic agents were used. No hypotensive drugs were used. Four patients had spinal drainage and 2 had ventricular drainage. The remaining either had CSF removed from the chiasmatic cistern or no CSF drainage at all. Most of the patients were placed on tapering doses of methylprednisolone for a week postoperatively, with starting doses of 40 mg. every 3 hours intramuscularly. Aneurysm patients were operated on 1 to 2 weeks after their subarachnoid hemorrhage. Arterial blood was drawn from a single puncture of the femoral artery after about three-quarters of the total dose of THAM had been infused. This blood was immediately analyzed for its pH, pCO_2, and pO_2 levels by the use of the Il-113* system for blood gas and pH analyses.

TABLE 4: Relationship of Brain Tension at Craniotomy to Arterial Gas Studies during THAM Infusion



Case No.	pH	Lesion	Disposition or Survival Time	Brain Tension
20	7.42	astrocytoma	home	very tense
3	7.44	aneurysm	home	
8	7.43	meningioma	nursing home	tense
19	7.42	intracerebral hematoma	home	
(6)		meningioma	home	
13	7.45	A-V malformation	home	soft
5	7.60	astrocytoma	22 weeks	
4	7.48	metastatic carcinoma	7 weeks	
(14)		glioblastoma	home	
21	7.63	aneurysm	home	relaxed
(7)		meningioma	nursing home	
(15)		pituitary adenoma	home	
18	7.50	A-V malformation	home	
2	7.58	aneurysm	home	
17	7.44	aneurysm	2 days	
1	7.64	metastatic carcinoma	7 weeks	very relaxed
9	7.56	meningioma	home	
10	7.65	metastatic carcinoma	3 weeks	
16	7.65	aneurysm	4 weeks	
11	7.46	A-V malformation	home	
12	7.55	aneurysm	home	

Results

The results are outlined in tables 3 and 4. Except for 5 subjects (cases 3, 6, 8, 19 and 20) satisfactory brain relaxation was obtained. In these 5 patients the dura could be opened without cerebral herniation, but due to insufficient relaxation the lesion was approached only with difficulty. In cases 4, 5, 13 and 14 a soft brain was pulsating gently against the dura, and when the dura was opened the cortex puckered slightly through the opening. In these cases there was no difficulty in removing the tumor. Where the brain is described as very relaxed, the cerebral cortex had fallen away from the dura.

Arterial blood pH, pCO_2 and pO_2 values (normal values are 7.40, 40 mm. Hg, and 90 mm. Hg respectively[23]) were obtained on all cases except 6, 7, 14 and 15. In all tested cases the arterial blood pH varied from 7.42 to 7.65. The pCO_2 was 40 mm. Hg or above (40–50) in cases 3, 5, 8, 13, 19 and 20; and the pCO_2 was 35 mm. Hg or below (35-24) in cases 1, 2, 4, 9, 10, 11, 12, 16, 17, 18 and 21. The pO_2 varied from 80 to 310 mm. Hg in all tested patients; this is sufficient to maintain adequate O_2 saturation. However, in cases 3, 8, 19, 20 and 22 it was not above 100 mm. Hg, and in cases 1, 2, 4, 9, 10, 11, 12, 16, 17, 18 and 21 it was 200 mm. Hg or above.

Nearly all patients exhibited severe respiratory depression and had to be manually ventilated by the anesthesiologist. The period of apnea lasted from a few minutes to an hour and a half following cessation of the THAM infusion. The infusion of THAM was always halted by the time the dura was closed, and the patient was always breathing on his own when skin suturing was completed. The remaining vital signs and electrocardiogram were stable except for a frequent 10 to 20 mm. Hg drop in the blood pressure. The patient of case 7 had excessive hypotension. The vasomotor tone in an occasional patient will be very susceptible to a change in blood CO_2 tension.

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* From Instrumentation Laboratory, Inc., Boston, Mass.

THAM was given in a dextrose solution to circumvent any hypoglycemia. Postoperative serum electrolyte values were not remarkable. Although there was a moderate diuresis during surgery in all patients, this was variable and difficult to quantitate because of varying states of hydration from patient to patient. No sloughing, thrombosis, or skin irritation occurred at the site of injection.

Discussion

In analyzing the data it is noted that good brain relaxation was obtained in cases 1, 2, 4, 9, 10, 11, 12, 16, 17, 18 and 21; and in each of these cases the pCO_2 was 35 mm. Hg or less and the pO_2 was 200 mm. Hg or more (patients 7 and 15 had no arterial blood studies; patient 22 had a hypertonic solution of THAM). On the other hand, the brain was not completely relaxed in cases 3, 4, 5, 6, 8, 13, 14, 19 and 20. Excluding patient 4 (very relaxed after the cyst was tapped) and patients 6 and 14 (no arterial blood studies) the arterial pCO_2 was 40 mm. Hg or above and the pO_2 below 200 mm. Hg. In the more unsatisfactory cases the pO_2 was not over 100 (cases 3, 8, 19 and 20), and the pCO_2 was highest (50 mm. Hg) in the 2 patients with the highest intracranial tension (patient 3 who was reoperated on, and patient 20 who required urea).

Although these data seem roughly to correlate the observed intracranial tension with arterial blood pO_2 and pCO_2 values, the reasons for this variation under THAM infusion were not obvious at first until a closer note of the patient's state of ventilation was observed and mentally recorded by the neurosurgeon. Although it was obvious that the patient soon became apneic (or at least the tidal volume was very depressed) after THAM was started, it was not until patient 6 was operated on that it became apparent that in an occasional case the patient was being inadequately manually ventilated. While THAM buffers CO_2, CO_2 also buffers THAM; if the patient is not ventilated adequately THAM merely reacts with the retained CO_2 that should have been excreted out the lungs. The apneic patient will build up his CO_2 pressure after THAM has been saturated with CO_2 and the patient also will receive less than the desired amount of O_2. From this point of view an expertly managed automatic ventilator to hyperventilate the patient is more efficient in reducing intracranial pressure than is THAM infusion.

Another impression gained is that the more profound the apnea, the better the brain relaxation. In reviewing the time it took the patients to establish adequate respirations after the THAM was stopped (post-THAM apnea), those patients who established respirations more rapidly (especially in cases 3, 19 and 20 in 3 minutes, 0 minute, and 1 minute, respectively) had the highest arterial pCO_2 levels and the most intracranial tension at surgery. Winterstein[24] thinks it is the pH within the central nervous system (dependent on CO_2 which, unlike HCO_3- and H^+, freely passes the blood-brain barrier) that plays a large part in respiratory stimulation. Since THAM causes withdrawal of CO_2 from the brain, the pH of the central nervous system is raised and respiratory stimulation is inhibited.

As with hyperventilation, THAM is most effective if spinal fluid can be drained. This can be done by spinal, cisternal or ventricular puncture, but in many cases sufficient CSF can be sucked out of the chiasmatic cistern—especially in aneurysm surgery. Often sufficient brain relaxation occurs from the reduced intracranial blood volume and pressure. This occurs within about 5 minutes, but there seems to be another effect of hypocapnia which is delayed (about 45 minutes). Reduction of brain CO_2 may cause a transfer of intracellular brain water into the CSF.[1, 16] Removal of this CSF will enhance reduction of intracranial pressure and allow better exposure. Also the osmotic activity of THAM must be taken into account. Although the osmotic activity is not pronounced as an 0.3 molar solution in these doses, when given as a stronger solution (as in case 22) it will draw water out of the CSF and central nervous system as the osmotic activity of blood is raised (also adding the problems associated with hypertonic solutions in circumstances of increased intracranial pressure). When given as an 0.3 molar solution there was no clinical evidence of rebound intracranial hypertension postoperatively. Its value as a hypertonic solution remains to be determined.

Summary

THAM has been studied to determine its efficiency as an intravenous drug for reducing intracranial pressure during intracranial procedures. Essentially this study substituted a bottle of

THAM for an automatic ventilator machine for the purpose of reducing CO_2 tension of body fluids. The resulting changes in arterial pH, pCO_2 and pO_2, the effect on the patient's respiratory response, and the variations in the observed intracranial pressure have been discussed. The reduction of intracranial pressure was considered excellent except in those few cases in which the patient was inadequately ventilated. For this reason expert use of an automatic ventilator for controlled passive hyperventilation appears to be superior to the intravenous administration of THAM. When the former is not available, THAM can be effective if the patient is normally ventilated.

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A Warning on Narcotics Form Signatures

Acting Commissioner of Narcotics George H. Gaffney, of the U. S. Bureau of Narcotics, has sent a warning to wholesalers, manufacturers, and others concerned regarding the unauthorized signatures on official opium order forms (Form No. 2513). This memorandum, dated April 14, 1964, reads as follows:

"Examinations of the triplicate copies of official opium order forms reveal that many of these forms are signed by unauthorized persons. Section 151.165 (a) and (b) of Narcotic Regulations No. 5 states, in part, that the official narcotic order forms shall be signed by the purchasing registrant in the same form as on the application for registration (Form No. 678) or may be signed by another person authorized by power of attorney (Form 1315) previously filed with and approved by the District Director of Internal Revenue. Under no circumstances should other persons sign these forms.

"We find that most of these violations occur at the retail level. Certainly pharmacists are well aware of the responsibilities associated with the purchasing of narcotic drugs. The order forms are intended solely to cover dispositions of taxable narcotic drugs and preparations to registered persons. Part of the system for controlling narcotics is dependent on these order forms. Therefore all registrants are cautioned to avoid violating the regulations by properly executing these official order forms."

Optimum Vitamin C Intake as a Factor in the Preservation of Disc Integrity*

Preliminary Report

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ALBERT EINSTEIN, probably the greatest genius of all time, repeatedly mentioned in his writings that the accumulation of knowledge only further revealed the hopelessness of knowing or understanding more than a small bit about the universe. The same thing is true of medicine. With our increasing knowledge the understanding of the intricacies of the chemistry of the body becomes more hopeless. This does not mean that present knowledge should not be used to its greatest extent, but it does indicate that one should not be forced to wait for complete scientific knowledge before using methods of treatment which are not harmful and which show hope of success. For example, consider the hidden work on Prontosil® which lay in the literature for many years, was finally reviewed, and eventually led to the development of antibiotic and chemotherapeutic methods. In 1935 I was greatly shocked in doing some studies on hypoglycemia to find that the action of insulin was little understood. The prevention of smallpox by Jenner's method of vaccination, though incompletely understood, was nevertheless a boon to mankind. This report on vitamin C therapy is a preliminary one and perhaps premature, but considerable evidence has been accumulated in 6 years to indicate that worthwhile progress has been made in the prevention of disc disruption and postoperative disc recurrences.

This study really began in 1957 when I started to take increasingly larger doses of vitamin C because of a bad back with severe lumbosacral pain which had gradually become more disabling over a period of 10 years. Golf games were missed because of back pain and rigidity, and quite a few evenings and nights were spent on a heating pad. To hit a bag of practice golf balls (40 or 50) would cause disability for several days. The relationship of vitamin C to connective tissue and ground substance of the body, including bones, cartilage, and teeth, was well documented, and I started with 100 mg. of ascorbic acid 3 times daily. This greatly improved the condition, and in about 4 months I was quite comfortable and could take extra exercise with little difficulty. I soon forgot the vitamin C and within an additional 3 months was again in difficulty. Resumption of the vitamin C produced a similar improvement, and it was at this time that I disclosed my experience to Dr. Paul Harrington, one of my close friends and a widely known orthopedic surgeon, who informed me that he had been giving large doses of vitamin C in his "back" cases for 2 or 3 years and was taking it himself with similar results.[1] He suggested that I increase the dose to 250 mg. 4 times daily. At present we recommend 500 mg. a day in 2 doses with an increase to 1,000 mg. daily if there is any discomfort or if heavy exercise, such as hunting, sail-boating, etc., is anticipated. Evidence from most patients indicates that muscular soreness experienced with exercise has been greatly reduced by the large doses of vitamin C and becomes obvious again when the vitamin is forgotten.

The administration of vitamins to some extent has become a cult, and this aspect should be examined in the case of the administration of large doses of vitamin C; however, there is no indication in the literature that any harm can come from larger doses, and the material is relatively cheap and may be purchased by the patient without a prescription, not only from drug stores but also from food markets.

Vitamin C Characteristics

Vitamin C or L-ascorbic acid is a water-soluble vitamin which is not stored in the body and is synthesized by most animals. Only in the guinea pig and the primates do there occur evidences of C deficiency, exhibiting its greatest manifestation in scurvy. Excess vitamin is excreted in the urine, feces, and perspiration, and a recent paper indicates that it is excreted to some extent in expired air. Minimal requirements have variously been set at 30 to 70 mg. a day and deficiency manifests itself only after a period of time, since the strong tissues which have been developed under adequate vitamin C intake do not immediately break down when the vitamin is withdrawn. Vitamin C is important in the maintenance of proper texture of teeth, bone, cartilage, blood vessels, and connective tissues throughout the body. Ingelmark[2] states, "Articular cartilage initially reacts to functional strain by comparative rapid cell proliferation in enlargement of the chondrocyte. This phase is followed by production of intercellular substance (collagen and vitamin C) on a scale so large that the number of chondrocytes per unit volume decreases and becomes lower than it was originally. This suggests that the amount of regenerated intercellular substance is dependent upon the quantity of intercellular substance available. Unless the latter is adequate, intercellular substance can never be produced in amounts large enough to cause appreciable hypertrophy."

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* Presented at a special Scientific Symposium, March 13, 1964, which was held in honor of Dr. James W. Watts' Sixtieth Birthday at the George Washington University Hospital, Washington, D.C.

In infection vitamin C is depleted, migrating to the white blood cells and adrenal glands. It is generally assumed that vitamin C affects various enzymes through reactions mediated by its oxidation-reduction potential.

The question of optimal levels of vitamin C is controversial. Animals who synthesize vitamin C maintain levels of saturation. The effects of exercise, injury, fatigue, exhaustion, and infection are all known but have never been successfully evaluated. Although much is known of the chemistry of vitamin C and its interrelationship to adrenal cortical activity, the basic knowledge of this chemistry still remains a mystery, and additional experiments must be done, particularly with respect to infection, work output, fatigue, exhaustion, and stress.

All of the available literature of the past 20 years has been reviewed, and this beginning of the story of vitamin C is perhaps the most dramatic of all the vitamins in many ways and continues to be one of the most mysterious. The relationship of vitamin C to the mucopolysaccharides in the formation of connective tissue, healing, the integrity of all connective-tissue structures, including bones, cartilages, teeth, and particularly the relationship to the adrenal gland, which itself contains 1 per cent of the total vitamin C in the body in spite of its small size, offers a very fertile field for additional work. Most investigators seem to progress to a point and then seem to founder. This is no reason not to try on an empirical basis the effects of this apparently harmless vitamin in areas where it might be effective.

Clinical Procedure

During the past 5 years gradually increasing numbers of patients with early disc lesions, with either simple lumbosacral strain or definite sciatic nerve involvement, were placed on vitamin C, 750 to 1,000 mg. daily.

Patients with severe disc involvement were given at least a short trial of vitamin C therapy in spite of the obvious need for surgery. A small percentage of these recovered without surgery. Some recurred later.

All patients with chronic disease, particularly those with generalized disc involvement, were placed on vitamin C.

All postoperative patients were placed on vitamin C and told to take 500 mg. daily indefinitely, increasing the dose to 750 or 1,000 mg. when there was any discomfort.

Results in Over 500 Cases

It can be stated with reasonable assurance that a significant percentage of patients with early disc lesions were able to avoid surgery by the use of large doses of vitamin C. Many of these patients after a few months or years stopped their vitamin C and symptoms recurred. When they were placed back on the vitamin the symptoms disappeared. Some, of course, eventually came to surgery.

The number of reoperations on the same patient for recurrence at the same level or a new disc lesion at a different level has been greatly reduced. Also, to some extent the standard statement that "1 out of 20 patients who has a ruptured disc operated upon will return within 5 years for operation of the same disc or for a second disc at a different level" has been altered. We are reviewing our disc cases for the past 5 years for evidence of recurrence and are comparing them with previous years. This would include something over 300 patients operated on during this period and a greater number of unoperated ones who we feel have been helped by this routine. Initial surveys indicate a significant reduction in reoperations as well as a more satisfactory postoperative course.

Interrelationship Between Adrenal Function and Vitamin C

1. Normal adrenal and normal C—normal healing.
2. Normal adrenal and reduced C—poor healing.
3. Normal adrenal and scorbutic—no healing.
4. Cortisone excess and normal C—no healing.
5. Cortisone excess and scorbutic—healing imperfect.
6. Adrenalectomy and scorbutic—no healing.
7. Adrenalectomy and normal C—healing imperfect.
8. Cortisone and excessive C equals?—no studies.

One common denominator in this interplay between these 2 functions seems to be that adequate vitamin C plus normal or suppressed adrenal activity results in normal connective tissue and healing reactions, and that vitamin C deficiency plus an excess of adrenal activity or cortisone excess results in normal connective tissue reaction. Vitamin C is detrimental only when excessive cortisone is administered. The interrelationship is not clear.

Discussion

This is a paper based on empirical application of a considerable amount of knowledge gained by many workers on vitamin C through the years and its effect on connective tissue, ground substance, bone, teeth, and cartilage. Although the available information is great, it represents less knowledge than is needed to thoroughly understand the effect on cartilage degeneration and regeneration in our disc cases. I have previously stated that this is a metabolic disease in which trauma plays only a minor part except in rare instances. While I must apologize for the fact that this cannot be a scientific paper, the results, I believe, when completely tabulated will show that significant benefit is obtained by the treatment of disc conditions by vitamin C therapy.

Vitamin C therapy is at least a factor in the disc problem, and its availability in adequate amounts seems necessary to disc metabolism and maintenance as it is for all tissue ground-substance. The optimum level is higher than previous estimates and much higher than ascorbic levels. The optimum level is indicated by many studies to vary considerably with stress, muscular activity, infection, or injury.

It is thought that the postoperative course in most cases has been improved, recurrences reduced, and surgery occasionally avoided, and that greater confidence in the operation may be expected as a result of vitamin C administration.

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Clothing Aids for Handicapped Children

A new brochure of 76 pages packed with information and illustrations, with the self-explanatory title, "Self-help Clothing for Handicapped Children," has been published by the National Society for Crippled Children and Adults. It is a guide for parents and professional personnel concerned with handicapped children who are faced with one of the first difficult problems of adjusting to their world—putting on their own clothing.

The authors, Clari Bare, O.T.R., Eleanor Boettke, M.S., and Neva Waggoner, M.A., have developed new suggestions and have brought together information tested by parents and therapists in many parts of the United States and in Canada, England and Sweden. Many suggestions are adaptations from a 2-year study of clothing for preschool children conducted by the School of Home Economics at the University of Connecticut.

The parents of any handicapped child will find this booklet useful and readily comprehended. New fabrics on the market, many new types of fasteners available, and ingenious adaptations of readily available garments are named and described. All aspects of training children to become self-sufficient in clothing themselves are fully explained. In addition, at the end of the booklet there is a list of references for further information.

Copies are available from the National Society for Crippled Children and Adults, 2023 West Ogden Avenue, Chicago 12, Ill., at 50 cents each.

The Syndrome of Gilles de la Tourette and Its Treatment*

Report of a Case

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THE SYNDROME of Gilles de la Tourette is known also as *tic convulsif*, *maladie des tics*, *maladie des tics impulsifs*, *myospasia impulsiva*, and *mimishe kramfneurose*. In Anglo-Saxon countries the syndrome is often referred to as "generalized or multiple tics with coprolalia." An identical or closely related condition occurring in Japan is known as *imubacco*. It is considered rare with the usual implication that many cases go undiagnosed.

The syndrome characteristically occurs in boys between the ages of 7 and 15, beginning with facial tics and grimaces which increase in frequency and extent. These brief, explosive, involuntary movements spread and begin to implicate the neck, shoulders, trunk and legs in a paroxysmal stereotyped vigorous movement which in some instances is sufficiently violent to catapult the patient from a chair. These spasmodic movements are often accompanied by a loud expiratory grunt or, most often, a sharp bark.

In addition, coprolalia finally appears; that is, a sudden, involuntary, loud Anglo-Saxon obscenity is compulsively uttered to the horror and dismay of the patient and to those within earshot. These paroxysms are intensified by emotion but usually occur without provocation several times a minute. Echolalia may occur in some instances. Consciousness is preserved, convulsions do not occur, and in my experience no intellectual deterioration has been noted, although many neurologists in the past have asserted that inevitable disintegration of the mind was characteristic. It is not heritable, and the etiology remains a mystery. Most authorities including Wechsler[1] insist that it is of organic origin. Only 2 autopsy reports have been recorded, both without any definite structural alteration.[2, 3] The pathogenesis of this disorder has been argued since Gilles de la Tourette identified it as an entity.[4] Actually, Itard[5] in 1825 described the first case. The victim was the Marquise de Dampierre, whose symptoms began at the age of 7 and persisted to her death at the age of 85. Her coprolalia which forced her to become a recluse is described by Itard as follows:

"It occurs suddenly in the middle of an interesting conversation. Her words are in extraordinary contrast to her refined manners. For the most part they are vulgar swear words, obscene epithets, and no less embarrassing for those who hear them, expressions that lack judgment or that are unfavorable for someone who is present. The patient herself gives the explanation that is the most plausible: The more she herself thinks that her vulgarities would be revolting, the more she is tortured by the fear that she would utter them, and it is precisely this preoccupation that when she can no longer control it puts these words at the tip of her tongue."

This famous case report of Itard's was alluded to by many neurologists in the 19th century, including Roth,[6] Sandras,[7] Gilles de la Tourette,[8] LeGendre,[9] and Charcot.[10] The impeccable Osler[11] also referred to this case but erroneously: "There is the often quoted case of the Marquis de Dampierre who from early youth to his 90th year," etc.

The evolution of this disorder as an entity is a fascinating historical vignette which has never been fully told. It began with the American neurologist, George Beard,[12] who in 1880 described an even more bizarre syndrome in a paper entitled, "Experiments with the 'jumpers' or 'jumping Frenchmen' of Maine," based on his observations of 50 cases, including 14 cases in 4 families. He found that the disorder began in childhood, was familial, rarely affected females, persisted throughout life, and was characterized by a marked and violent jump in response to sudden noise or startle. These paroxysms never occurred spontaneously and were not associated with loss of consciousness. In addition, some of the patients showed echolalia and some responded automatically to a quick loud command by repeating the command and executing the act even though it might be dangerous or humiliating to them. Dr. Beard believed that the disease was limited to the northern part of New Hampshire, Maine and Canada among subjects of French-Canadian extraction, most of whom were lumberjacks. He concluded, "The most increditable fact connected with the whole subject was not the existence of the phenomenon but that they had not been previously observed by science." This syndrome strangely disappeared until this year when 2 cases were encountered.[13]

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* Presented at a special Scientific Symposium, March 13, 1964, which was held in honor of Dr. James W. Watts' Sixtieth Birthday at the George Washington University Hospital, Washington, D.C.

Gilles de la Tourette[14] translated Beard's article in 1881 and later inferred that similar instances occurred in France and in Russia. William Hammond,[15] the controversial Surgeon General under Lincoln, is responsible for reporting a case of a "Jumping Frenchman" in Russia whom he actually did not observe. His article entitled "Myrachit, a Newly Described Disease of the Nervous System" was severely criticized.[16] It was these reports that motivated Charcot to direct his resident Gilles de la Tourette to study these strange disorders and later to attach his name to the disease tic convulsive. This historical event occurred at a clinical meeting in 1885 when Gilles de la Tourette was 27 years of age. Even in 1885, when diseases to give away were plentiful, this was something to write about, and Paul LeGendre[9] did so:

> "Not everyone gets to go to Corinth, still fewer get a disease named for them. We do not know if our friend had the first of these good fortunes. Dr. Charcot, certainly the best judge in such matters, declared this year at a clinical meeting that the nervous disease by Gilles de la Tourette is an entity of sufficient special characteristics to be named for our friend."

Gilles de la Tourette had taken the first step in that direction when, in 1881, 3 years before he joined Charcot's staff at the Salpetriere, he translated Beard's article which he simply signed without comment. In 1884 Gilles de la Tourette joined Dr. Charcot at the Salpetriere and in July 1884 published his article, "Jumping, Latah, and Myriachit."[8] He believed that all 3 conditions were the same. Shortly after Gilles de la Tourette's publication Charcot discussed the subject in one of his Tuesday lectures at the Salpetriere.

This lecture oddly enough was never published in French, but it was published very soon after it was given by Melotti who heard this lecture and published it in Italian in August 1885.[17] On the very first page of this lecture Charcot explained why and in what respect his own view differs from that of his resident, Gilles de la Tourette, in regard to the identity of jumping, latah, and myriachit with Gilles de la Tourette's disease in spite of the fact that only a few months earlier they had together formed "the solid body for the study of this disease observed but never before described, and thus have indubitably helped in extracting it from the chaos of the choreas."

It was the consensus of the early students of this disorder that intellectual deterioration or insanity was the inevitable consequence of this disease, and none of Gilles de la Tourette's original cases showed any improvement. This hopeless prognosis is upheld by most authorities to this day, although sporadic clinical reports of spontaneous remission or of therapeutic benefit have been described, including those of Mahler,[18] Ascher,[19] and Mazur.[20] Eisenberg[21] questioned the validity of some of these claims of successful therapy. He recorded 1 patient who responded to psychotherapy. In his experience pharmacologic therapy had been ineffective. Bockner[22] reported 2 cases in elderly men who had this disease since childhood and with whom various forms of therapy including psychotherapy and electroconvulsive therapy failed. In 1 instance chlorpromazine was said to be useful.[22] Carbon dioxide[23] and Dexedrine® with anti-parkinsonian drugs were helpful but with only a short follow-up period.[24]

Challas[25] reported 2 cases treated with an experimental drug, R1265. Singer[26] used Librium® with benefit but with only an 8-month follow-up. Stevens and Lindner[27] studied a patient treated with hypnosis.

The first prefrontal lobotomy for this disorder was performed in 1955 by Dr. James Watts. I reported this case to the Philadelphia Neurological Society in 1957 but awaited a longer follow-up before publishing the clinical data. E. F. Baker[28] described a case in 1962 of *tic convulsif* in which the patient remained in remission for 1 year following bimedial frontal lobotomy.

Report of Case

The patient, a 37-year-old single white man, was examined in July 1955 at the George Washington University Hospital. Because of his affliction he lived at home with his parents, had never been employed, and had no formal schooling beyond age 15. At age 8 he developed a bizarre tic which progressed, became associated with compulsive utterances of obscenities, and rendered him completely incapacitated. The motor tics were varied, consisting mostly of rhythmic movements of the head, throwing out of his arms, a violent generalized shudder, and the simultaneous uttering of a single, short, Anglo-Saxon obscenity. These episodes were more or less stereotyped and occurred spontaneously but were intensified by emotion. At no time had he experienced unconsciousness, convulsions or any vasomotor disturbances. He was able to execute highly skilled acts, for example, assembling model airplanes.

In addition to the above he manifested echolalia and echopraxia. During the neurologic examination, when instructions were given to him, he would repeat the instructions. The violent shaking and jumping caused him to bump his head frequently, and his loud barking disturbed his family's sleep. The violent jumping accompanied by the expostulations occurred about 5 to 7 times a minute under relaxed conditions.

The patient is the older of 2 brothers. The family history was negative. His symptoms began at age 8 after his father and mother separated. He had had no serious illnesses nor injuries other than the frequent mild head injuries consequent to his jumping.

As the symptoms progressed he was examined by many physicians in this country and abroad, including Dr. Adolf Myer and Sir Henry Head. His mother knew of no specific diagnosis. He had received psychotherapy on an extramural basis and also at the Devereaux School for a year. He had received occupational therapy and was tutored privately.

The psychiatric examination revealed a pleasant, coöperative, and somewhat childish and facetious man with limited intellectual endowment. There was no abnormal mental content and no paranoid elaborations. The affect was resonant. He was outgoing, friendly and never destructive, argumentative nor querulous. There was never any antisocial behavior, and he was always responsive to authority. He enjoyed sports and the company of others. He liked to draw, make model airplanes, and bowl.

The neurologic examination was completely negative aside from the compulsive motor and verbal tics. The movements were involuntary and purposeless and lasted 1 to 2 seconds at the most. At times, after uttering an obscenity, he would whistle in a forced manner, apparently attempting to feign nonchalance. He not only recognized the absurdity and impropriety of his verbal explosions but found it increasingly intolerable and was desperate for help.

Electroencephalogram and pneumoencephalogram were negative.

In the light of the patient's incapacity, the prolonged duration and prospect of further progression, a transorbital lobotomy was performed by Dr. Watts on July 28, 1955. The patient seemed more relaxed after the operation, but his mannerisms persisted although with less emphasis and force. He continued to improve for the next several weeks, reached a plateau, and then slowly improved. Thorazine®, up to 100 mg. a day, seemed to help, and for the first time he was able to accompany his mother to social events without embarrassing her and everyone around them and was able to sleep without producing the annoying barking sound which had roused the entire family, and, in general, was less tense and restless. Both the patient and the family were pleased with the results. When examined 2 years after surgery there was marked decrease in the frequency, duration, and amplitude of the motor tics and the compulsive swearing.

As of March 1964 the family has noted no jumping or jerking, and the patient is described as calm and swears only when excited.

No neurologic or psychiatric sequelae have resulted from the lobotomy, as has been described.[29] The postoperative obesity is controlled by the patient's regular and active participation in bowling, at which he is inordinately proficient.

The lobotomy, although an extreme measure, seems to have been justified, although newer neurosurgical techniques might have been less drastic and more plausible. Cooper[30] has applied his technique to 4 patients with *tic convulsif*, and the results appear promising.

Summary

The historical evolution of the syndrome of Gilles de la Tourette has been briefly recorded. Dr. George Beard, an American neurologist, identified in 1880 a bizarre disorder known as "The Jumping Frenchmen of Maine," which is similar to, but distinguishable from *tic convulsif*. Beard's account stimulated Gilles de la Tourette to study and attempt to clarify the "chaos of the choreas." From this group of so-called "choreas" Gilles de la Tourette segregated *tic convulsif*, a rare clinical entity, which is progressive, lifelong, and resistant to therapy. Dr. James Watts performed the first prefrontal lobotomy for this condition with beneficial results which persist after nearly 10 years.

Acknowledgment: I wish to thank Dr. James Watts for permitting me to examine this patient. I am indebted to Dr. Anne Caldwell for her invaluable assistance in compiling the bibliography.

(*Continued on page 304*)

Neurophysiology, Psychiatry and Psychiatrists*

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ALTHOUGH THEY WORK in very different ways, neurophysiologists and psychiatrists share a basic, common interest in the behavior of their subjects. Indeed, all neurophysiologic experimentation may be thought of as having for its ultimate object the explication of the influence of the brain on the activities of animals and humans. This may not always have been so obvious as it seems now; it is doubtful whether Fritsch and Hitzig[1] in 1870 had in mind an experimental attack on behavior in general when they produced movements of the extremities of various animals by electrical stimulation of the opposite frontal cortices. Yet no matter how limited their immediate purpose may have been, they were also making a discovery about the relationship between the brain and a vital though circumscribed aspect of behavior, and they were thus providing an early link in a chain of knowledge which had to be forged before those broader aspects of behavior of interest to psychiatrists could be given neurophysiologic attention.

During this early stage when the neural activities underlying sensorimotor and reflex functions were the primary subjects of investigation there was little reason to venture into the infinitely more complicated behavioral activities we subsume under the term "mind," which was thought to be the realm of the psychologists. The great Sherrington[2] himself expressed doubt that anything the neurophysiologist did could contribute in any way to the understanding of the mind, thus putting himself, interestingly enough, into opposition with Freud, who always hoped that his behavioral discoveries could, some day, be grounded on the firm foundation of physiology and chemistry.

The contrast between such an attitude and the one underlying the present bold and imaginative experimental onslaught on such global manifestations of behavior as sleep, dreaming, memory, consciousness, emotion, and motivation is striking enough to lead to consideration of the causes operative with increasing momentum over the past 50 years, and especially since 1937, which have been responsible for such a change.

In the first place, of course, is the fact of a very respectable body of accumulated knowledge about the functions of the brain, spinal cord and peripheral nerves, the harvest of decades of painstaking work. It is only because they can be secure on this foundation that present-day neurophysiologists and experimental psychologists are able to plan their investigations of broader aspects of behavior. The introduction of new techniques has given the experimenter a previously undreamed of freedom of action in putting increasingly more complicated and subtle questions to his subjects, both animal and human.

These techniques include the use of stereotaxic apparatus, electroencephalography and electrocorticography, advances in electrophysiology, the Hess techniques by which electrodes are implanted in the brains of unanesthetized subjects, applications of cybernetic feed-back principles as in the Skinner bar-pressing apparatus, and effective cinematographic and auditory recording devices. Keeping pace with these developments has been a corresponding improvement in neurosurgery so that not only can more extensive operations be carried out in greater relative safety but at the same time valuable information can be collected, as has been exemplified by the work of Wilder Penfield[3] in Montreal.

The pervasive influences of Freudian psychoanalysis and *Gestalt* psychology have also had important though less direct effects in stimulating interest in the brain and behavior, the former by providing a fascinating and heuristically persuasive theory of human behavior which cried out for methods of experimental proof or disproof, and the latter by its emphasis on the futility of trying to understand what an organism is doing unless it is considered in totality.

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* Presented at a special Scientific Symposium, March 13, 1964, which was held in honor of Dr. James W. Watts' Sixtieth Birthday at the George Washington University Hospital, Washington, D.C.

All students of behavior, whether in the social or biological sciences, are aware of the urgent need for a really comprehensive, durable and scientifically based theory of human behavior. Despite promising leads in various directions, this is not yet available, and the fact that it is not provides a constant impetus to the behavioral neurophysiologists to make their contribution to its formulation.

The reaction of psychiatrists to these neurophysiologic contributions has been marked by a considerable degree of ambivalence, reflecting very differing basic viewpoints and philosophies. To illustrate these differences, I should like to create 2 personalized abstractions whom we may refer to as psychiatrist A and psychiatrist B, both opinionated and stubborn fellows who hold extreme and opposing views about the value to psychiatry of neurophysiologic experimentation.

To psychiatrist A, who probably belongs to Redlich's D-O for directive-organic group,[4] the researches of the neurophysiologists on the brain and behavior have been stimulated by a great wave of dissatisfaction, also evidenced by the enthusiastic reception given to the revelations of the neurochemists and neuropharmacologists, over the attempts of the various schools of depth psychology to explain and influence behavior. Psychiatrist A believes that all the activities of what we call the mind must ultimately be explained through physical and chemical means, and like the Devil quoting Scripture he will cite statements of Freud which can be interpreted as in support of this view. This is so, he will say, because the efforts of the depth psychologists and of social scientists in general have not worked out; their theories, little more than playing with words anyway, are confused, redundant and often mutually contradictory mélanges of concepts often reified into static immobility.

Above all, these theories do not meet the stringent requirements of the methods of scientific inquiry as modeled on research in the physical sciences, and this is so, not simply because the methods used by depth psychologists are often faulty in their application, as, for example, when experiments with humans are performed with inadequate controls, but, more fatally, because these methods are intrinsically incapable of producing results acceptable to scientific canons. The methods of the social scientist founder on the inescapable rock of built-in subjectivity, because the investigator ultimately is unable to dissociate his own reactions from the experiment. He can be dealt with objectively only by another observer who will suffer the same disability, and so on ad infinitum. In the last analysis he must rely on introspection, and what can be derived from introspection is not science because it is not public or quantifiable. When the physicochemical revolution, of which current neurophysiologic research is a harbinger, has been achieved, there will be no need to study interpersonal events as anything more than epiphenomena of the underlying neural events.

Not so, says psychiatrist B. What the neurophysiologist does is interesting but irrelevant to psychiatry. The neural events underlying the behavior of patients are not our concern but only the behavior itself, in both its intrapsychic and interpersonal aspects. Although psychiatrists and neurophysiologists appear to be talking about some of the same things, the difference between what the latter have to say about memory and consciousness and the incredible sublety and complexity of these concepts as they are seen in any analyst's office is so vast as to transcend the quantitative and become qualitative, different in kind. The neurophysiologic approach is only another attempt to smuggle back in that durable demon, the Cartesian mind-body dichotomy which we have so long been struggling to exorcise.

The idea that a study of brain processes can explain behavior is an example of the reductive fallacy since all it does is reduce complexity to pseudosimplicity by "supposing that abstract concepts name only the concreta in which they are anchored, and to which they are then reduced."[5] It is vain to hope that anything analogous to a germ theory will ever be evolved to account for either normal or abnormal behavior. And anyway, what is wrong with the theorizing of depth psychologists or the science of social scientists? The fact that psychologic theories of behavior are incomplete and lack consensus is only the reflection of a young and healthy stage in our development and not an indictment of depth psychology. It is true that the methods of physics are only partly applicable to psychology, but it is not true that these are the only methods which can speak for science. No less an authority than Bertrand Russell[6] has taken up the cudgels for introspection as a valid scientific method, pointing out that one cannot make a public observation except privately and individually, and that therefore even the data of physics have their psychologic aspects. Finally, psychiatrist B sees in the enthusiasm for electrical, chemical and physical analyses of behavior, to the extent that these are substitutes for the study of people, a possibly dangerous manifestation of the malaise of our age, antihumanistic, anti-individual, atomizing, and authoritarian.

So much for psychiatrist A and psychiatrist B. It is easy to suspect that the former may be motivated by jealousy of the prestige of psychoanalysis and by a peevish frustration because human beings are difficult to understand and to change, and that the latter may be intolerant, doctrinaire, and enamored of complexity for its own sake. Still, they both have something to say, and it may be that we can benefit from the forensic exercise provided by these adversary presentations to formulate a more balanced and less defensive psychiatric point of view toward the neurophysiologic approach to the study of behavior.

It is of course not at all necessary to take the attitude that the neurophysiologist comes in the guise either of iconoclast or Messiah. What he has to offer are, after all, simply items of evidence, and if these are convincing, any theory of behavior will exclude them at its peril. Neurophysiologic research certainly serves a useful function if it provides a kind of limiting membrane within which psychologic speculation must confine itself. An example is the check given to theories about the wish-fulfilling and sleep-preserving functions of dreaming by recent experimental findings[7] in this area. Another example is the challenge to the Freudian drive-reduction theory of human motivation implied by some of the recent work on the "pleasure"[8] or "start"[9] centers in animals. On the other hand, some phases of psychoanalytic doctrine have been bolstered by brain experiments, as in the case of the concept of memory traces and unconscious memories which Penfield's findings seem to support. In this latter case, we have data discovered through one kind of scientific inquiry involving introspection, and then supported by other methods closer to those of the physical sciences.

The neurophysiologist can be regarded then as an ally who may have something useful to tell the psychiatrist, who only betrays his insecurity if he refuses even to listen. At the same time the flow of help and information is by no means in one direction only, and neurophysiologic research on the behavior of animals and humans is strengthened and made more sophisticated and meaningful when the insights, methods and observations of depth psychology can be applied both to the design of experiments and to the interpretation of experimental results.

On the whole, the evidence seems to indicate that a dialogue between neurophysiologist and psychiatrist is possible and useful. Whether the mutual expectations of the 2 disciplines will ever turn out to have been "great expectations" cannot yet be determined but must await the verdict of the careful and imaginative research which today is attempting to explore the relationship between the brain and behavior.

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PRESIDENT'S PAGE

THE SIXTIETH BIRTHDAY CELEBRATION OF JAMES WINSTON WATTS

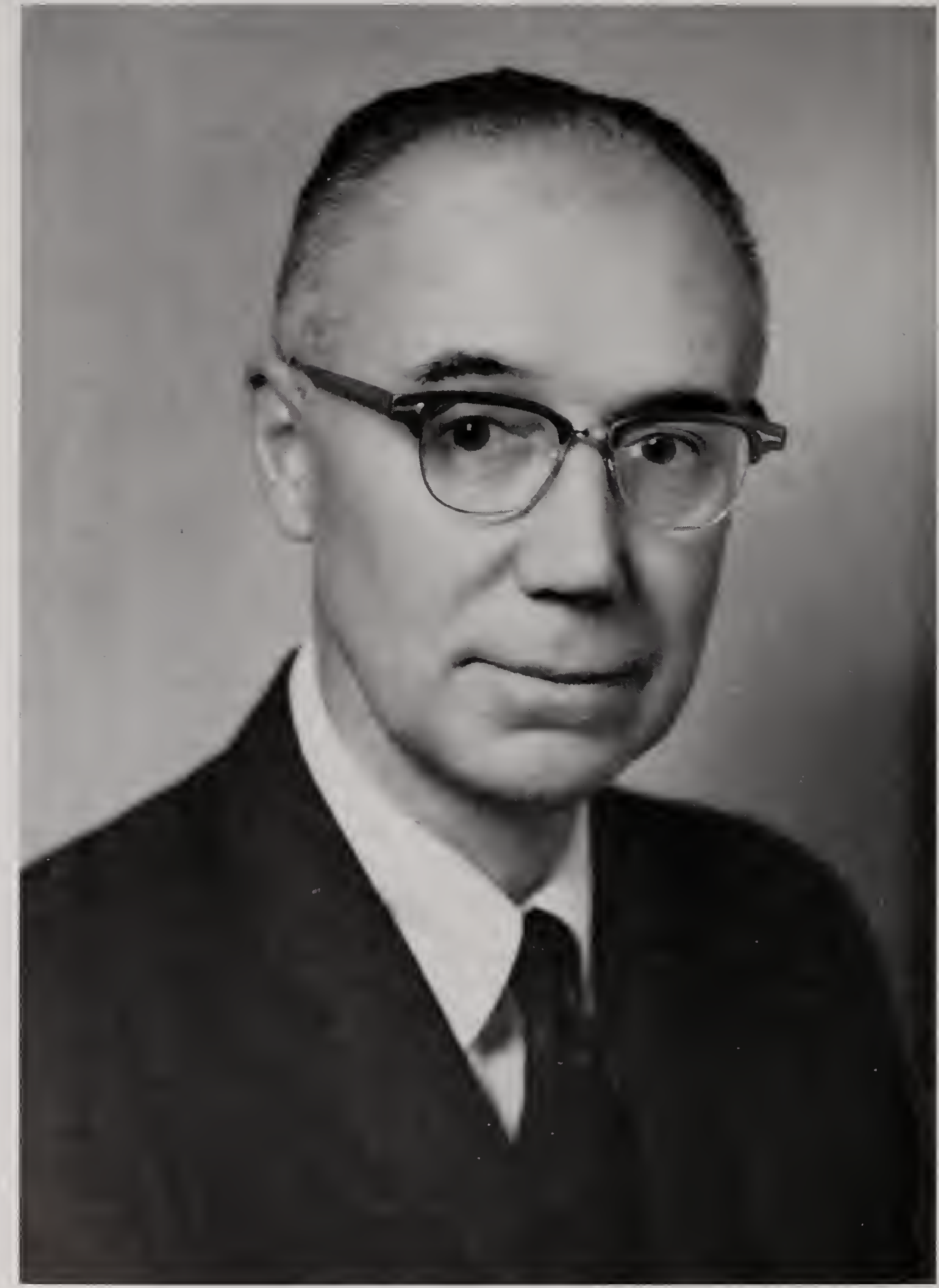
MANY MEMBERS of the District of Columbia Medical Society have made contributions locally and nationally in the field of medicine. Dr. James Winston Watts, a prominent example of this group and a Past President of the Medical Society, has had the rare experience of being honored on his sixtieth birthday by his colleagues, residents, and former students for his various distinctions. He is still active in the practice of neurosurgery and his devotion to duty and professional skills will probably take him to new heights of accomplishments.

Dr. Watts was one of the early neurosurgeons in the District of Columbia to limit his work entirely to his specialty. He helped to organize and develop the Department of Neurosurgery at the George Washington University. Soon thereafter he established an accredited program for training young neurosurgeons. Many of these specialists whom he trained have become distinguished neurosurgeons in their respective countries. He has succeeded in stimulating his residents to acquire the modesty, skill, knowledge and wisdom which he possesses. Although Dr. Watts is an excellent teacher and an excellent organizer, he has exhibited maximum interest in the diagnosis and treatment of neurosurgical ills of patients. As a research scientist he has become a pioneer in some therapeutic areas, including prefrontal lobotomy. In addition to his scientific approach to his patients, his calm attitude, kind behavior, and soft speech have served well to allay the fears of the ill and to effect confidence, love, and loyalty.

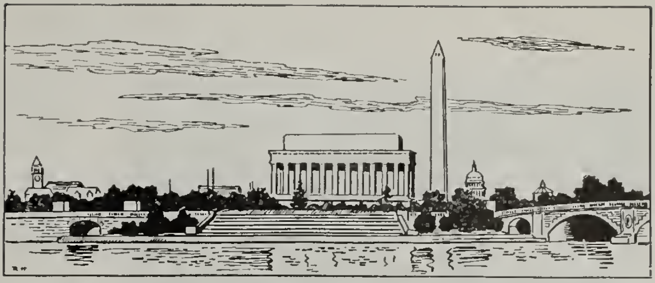
Dr. Watts has not confined all his efforts and interest to the George Washington University alone; he has had a pride in the whole medical community. He has always contended that if 1 medical center is good for the city, 2 excellent medical centers would be better, and 3 excellent medical centers would be much better. He has therefore worked with his colleagues of the other medical centers as a member of a team to promote and to improve the clinical and research facilities in neurosurgery.

Dr. Watts pursued his premedical and medical training at 2 schools of higher learning in Virginia, the Virginia Military Institute and the University of Virginia, and has always characterized the noblest traditions of these schools and of the state of Virginia. He has lived a life of integrity and modesty, and he has confidence in others. To know him is to trust him without reservation. Thus by example he has been an invaluable teacher, a great leader, and a dedicated physician. It is therefore fitting and logical that his colleagues and students have honored him, for he has earned this distinction.

Edward W. Nicklas



JAMES WINSTON WATTS, M.D.



EDITORIALS

James W. Watts—An Appreciation*

It is a great pleasure to have this opportunity to join with you in honoring Jim Watts. As Jim and I have known each other for many years, perhaps I may be permitted to reminisce. My first contact with Jim was really *in absentia.* He took over my duties as Dr. Percival Bailey's resident at the University of Chicago Clinics in 1930–31 while I was in Europe. Naturally, my contacts with Jim in Chicago were brief and limited, but I was very conscious of my indebtedness to him, As I know from talks with Bailey, Jim Watts made a profound impression at Chicago as a very determined man—qualities which he demonstrated many times later and undoubtedly still possesses. The determination which most impressed Percy Bailey at that time was Jim's insistence on a regular, daily, early afternoon nap.

In 1933 our paths merged again. When I came to New Haven to work with Professor John Fulton, I found Jim Watts already there hard at work on neurophysiologic problems. Jim and his good wife, Julia, then as always, promptly came to our assistance and helped us to get located and acquainted in New Haven and started at work in the laboratory. Jim distinguished himself in Fulton's laboratory by his work demonstrating the influence of the cerebral cortex on the activity of the visceral system.

I next saw Jim in Philadelphia while he was serving a neurosurgical residency with Charles Frazier from 1933 to 1935. Earlier, I mentioned Jim Watts' determination. Probably most of you never knew Charlie Frazier, but he was a determined man too. It is a tribute to both Watts and Frazier that they persisted in their association through the completion of Watts' training in spite of the fact that for much of this time they seldom spoke to each other and communicated largely by an interchange of notes.

From Philadelphia Jim Watts came to Washington, almost 30 years ago. It is no exaggeration to say not only that Jim brought neurologic surgery to our Nation's Capital but that he nurtured and established it here. In the past 30 years Jim has had many interests and done much creditable work. Undoubtedly, almost everyone who is at all knowledgeable about things neurologic has been impressed with Jim's contribution, together with Walter Freeman, of the introduction and development in this country of frontal lobotomy. In the past 20 years some of the excitement and enthusiasm created by frontal lobotomy has simmered down. This in no way lessens the significance of Jim's contribution in this field. In part, the reduction in interest in frontal lobotomy has resulted from the introduction of new drugs and of electroshock therapy which psychiatrists could administer themselves. But in large measure the decline of interest in frontal lobotomy has resulted from the attitudes of the psychiatrists themselves. They have been fearful of the loss of their prestige when they find it necessary to turn to the neurosurgeon for therapeutic assistance. More important still, psychiatry in this country has been dominated for many years by a blind conviction that mental processes and mental disease have nothing to do with the brain or with neurologic processes but are solely concerned with external factors exerted from the intra-uterine period onward. Frontal lobotomy was a contradiction of this concept to which psychiatry preferred to close its eyes. Slowly, times are changing. There is evidence that psychiatry is beginning to emerge from its age of mysticism and the blind adherence to dogma and authoritarianism.

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* The Toastmaster's Address, given at a dinner, March 13, 1964, in honor of Dr. James W. Watts' Sixtieth Birthday at the Officers Club of the Walter Reed Army Medical Center, Washington, D. C.

DR. AND MRS. WATTS with their sons, Winston and Randolph, at The Homestead, Hot Springs, Va., March 1964.

It has not yet joined the scientific era and begun to concern itself wholeheartedly with facts, but there is reason to hope that eventually it will. When and if psychiatry achieves the age of reason, it will turn again to the investigations of Watts and Freeman. It will insist upon integrating into its body of knowledge the effects of the division of the white matter of the frontal lobes upon mental processes, normal and pathologic.

I must, here and now, acknowledge a great personal debt to Jim Watts. When I was asked to serve as President of the World Federation of Neurosurgical Societies and to organize the Second International Congress of Neurological Surgery some place on the eastern seaboard of the United States, it was obvious that I had but one choice. The Congress had to be held in Washington, not only because it is the Nation's Capital, that it is a beautiful and delightful city, that it had the necessary facilities, but also because Jim and Julia Watts live here. Such a large international meeting throws a great responsibility upon the local people as well as upon the officers of the organization. I knew, from the manner in which Jim and Julia had handled the meeting of the Harvey Cushing Society a couple of years earlier, that they would organize the other neurosurgeons in the District and make this first International Congress to be held in the United States in the neurologic field a huge success. They did. Jim's first request was that he be permitted to ask his good friend Hugh Fulcher, who is with us this evening, to serve as co-chairman of the local committee. This was typical of Jim's loyalty to his friends, as well as his superb organizing ability. The reasons for my deep indebtedness to this cherished friend are obvious to all of you.

In closing, I have but one further remark to make. I know that you all love, honor and respect Jim Watts, but why do you have to have such a dinner at this time? After all, he's only 60!

Paul C. Bucy, M.D.
Professor of Surgery,
Northwestern University
Medical School

Of Wit and Wisdom*

I shall be brief since, first, my views on James Watts are already well known and indeed reflect the consensus held by all of my colleagues in the community, and second, I shall be brief because I am sure I could very readily become sentimental, an unseeming posture for an allegedly jaded neurologist. For the last 10 of the 22 years I have known Jim I have collaborated with him almost daily. I could stop there and justly claim this alone as a unique and revealing phenomenon—a neurologist and a neurosurgeon working closely and harmoniously. In most communities this rare and fleeting combination is regarded not only as an explosive mixture but also highly fissionable with a half-life measurable in milliseconds. But the viability of this unbelievable alliance at the George Washington University is just another eloquent tribute to Jim's patience, his magnanimity, his sense of fairness and justice, and, above all, his wit and wisdom. And these are the qualities that have won him the warmth and enduring loyalty that characterize all his relationships.

I am grateful to him for many things, including what he has taught me of the realistic appraisal and acceptance of people, their problems, and their idiosyncrasies.

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* Read at a dinner, March 13, 1964, held in honor of Dr. James W. Watts' Sixtieth Birthday at the Officers Club of the Walter Reed Army Medical Center, Washington, D. C.

His incredible ease in sensing and dealing with others reflects the rarest of qualities, his built-in sense of honor and justice, a gift that can stem only from his basic integrity. Jim's personal standard of fair play and justice is as immutable and predictable as the standard platinum meter bar that resides in that safe in Paris. Questions of ethics or principle are automatically referred to this built-in standard of conduct, and the returning echo feeds back a clear and unequivocal directive. I suggest that Dr. Bucy and Dr. Velasco-Suarez design a similar reverberating circuit for universal implantation. The power output of such a unit would, of course, be measured in Watts.

With his 20/20 insight and balanced self-esteem he lives up to the image of his own character, and, as William James observed, the just man is the man who can weigh himself impartially. His lack of pretension and genuine empathy are revealed in his warm rapport with patients and their relatives regardless of their station in life or their degree of education. Yet, when a genuine point of principle arises his dry wit hardens into a sharp and formidable weapon as rigid as the same meter bar, regardless again of the station or affluence of his adversary. As Jefferson Davis said of Juda Benjamin, "He is never haughty with the humble and never humble with the haughty."

By his personal dignity and his exemplary dedication to the advancement of his profession he has elevated and edified his colleagues and his students. By example more than by admonition he teaches each resident that to serve well he must cultivate his conscience, quicken his attention to the voice of the internal judge, and to use all means to secure obedience to it.

In this untidy world of shifting values full of impostors and self-serving psychopaths it is a comfort and inspiration to have such a firm standard of personal integrity to which to repair, and all of us have been enriched by it.

Harold Stevens, M.D.

Toxic Nephropathy*

Toxic nephropathy has been a poorly understood segment of renal disease. This term, which has been adopted by the Council on Drugs of the American Medical Association, describes any adverse functional or structural change in the kidney due to the effect of a chemical or a biologic product which is inhaled, ingested, injected or absorbed, or which yields toxic metabolites with an identifiable effect on the kidney. By extension, the concept of nephrotoxin is occasionally applied to the renal effect of physiologic substances circulating in concentrations greater or less than normal, such as they occur in hypercalcemic, hyperuricemic, or hypokalemic nephropathy.

Although the Council on Drugs has operated a Registry of Adverse Reactions collected by the Subcommittee on Blood Dyscrasia since 1957, there has existed no national mechanism for collecting information from physicians on toxic nephropathy encountered in the course of clinical practice. During the past year the Registry of Adverse Reactions has been expanded to include panels of consultants in additional subspecialty areas, one of which is designated as "Nephrology." This panel consists of Dr. Neal Bricker, of Washington University, St. Louis; Dr. David Earle,

TABLE 1: Nephrotoxic Nephritis

A. Metals: mercury (organic and inorganic), bismuth, uranium, cadmium, lead, gold, arsene and arsenic, iron, silver, antimony, copper and thallium.
B. Organic solvents: carbon tetrachloride, tetrachlorethylene, methyl cellosolve, methanol, and miscellaneous solvents.
C. Glycols: ethylene glycol, ethylene glycol dinitrite, ethylene dichloride, and diethylene glycol.
D. Physical agents: radiation, heat stroke, and electroshock.
E. Diagnostic agents: contrast agents in high concentration for pyelography and aortography, and bunamiodyl.
F. Therapeutic agents: Antibiotics: sulfonamides, penicillin, streptomycin, kanamycin, vancomycin, bacitracin, polymyxin and colistin, neomycin, tetracyclene, and amphotericin. Analgesics: salicylates, para-amino-salicylic (PAS), phenacetin, phenylbutazone, zoxozalamine, phenindione, puromycin, Tridione®, Paradione.®
G. Osmotic agents: sucrose, mannitol.
H. Insecticides: biphenyl, chlorinated hydrocarbons.
I. Miscellaneous chemicals: carbon monoxide, snake venom, mushroom poison, spider venom, nephroallergens, cresol, beryllium, hemolysins, aniline, and other methemoglobins.
J. Abnormal concentration of physiologic substances: hypercalcemia, hyperuricemia, hypokalemia, etc.

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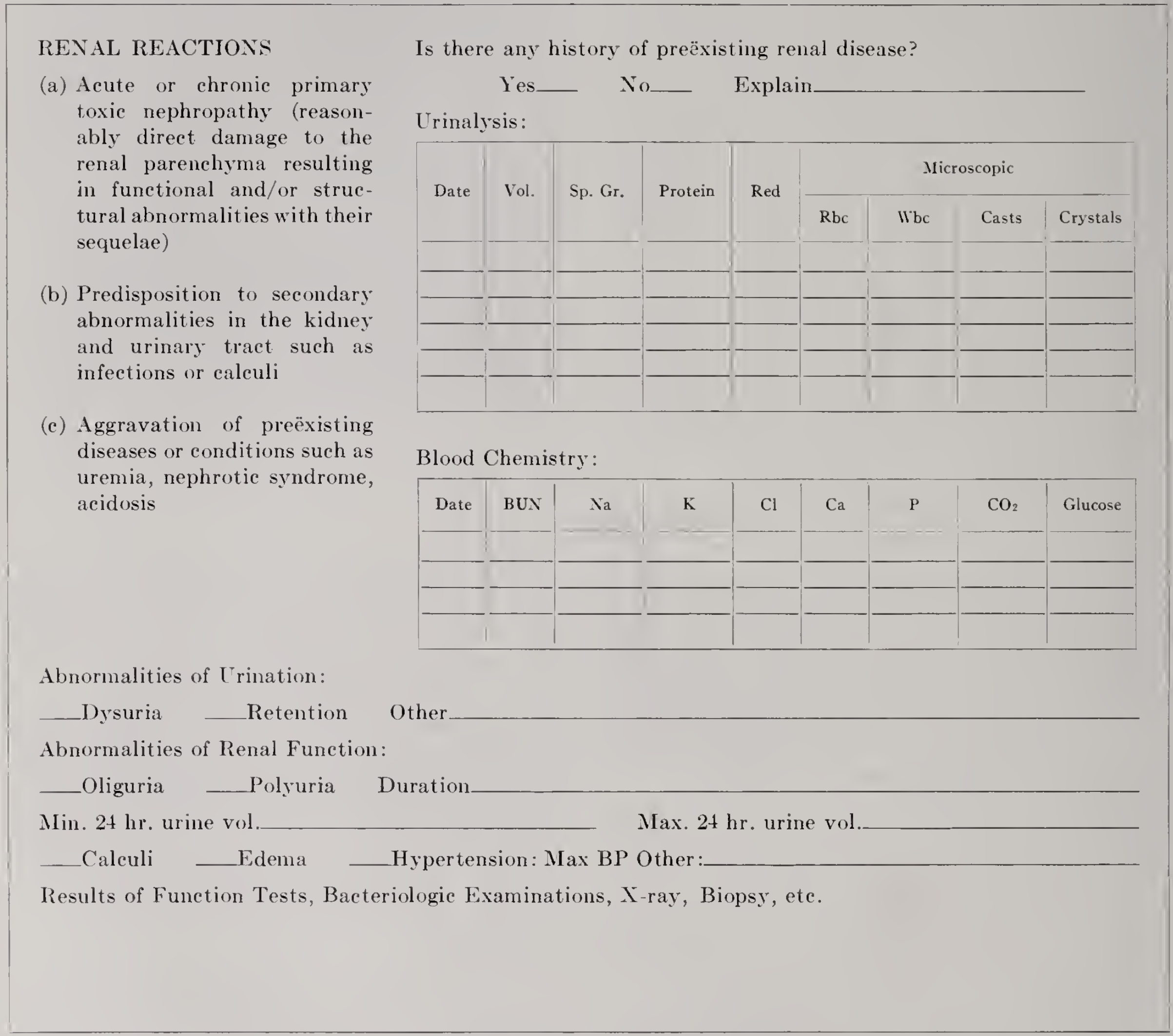
* From the Department of Medicine, Georgetown University School of Medicine, and the Renal and Electrolyte Division, Georgetown University Hospital, Washington, D. C.

Northwestern University in Chicago; Dr. Joseph Holmes, University of Colorado in Denver; Dr. Charles Kleeman of Los Angeles, and myself. At its meetings in 1963 the panel reviewed the general case report form for Adverse Reactions and adopted a nephrology report form which is reproduced in figure 1.



RENAL REACTIONS

(a) Acute or chronic primary toxic nephropathy (reasonably direct damage to the renal parenchyma resulting in functional and/or structural abnormalities with their sequelae)

(b) Predisposition to secondary abnormalities in the kidney and urinary tract such as infections or calculi

(c) Aggravation of preëxisting diseases or conditions such as uremia, nephrotic syndrome, acidosis

Is there any history of preëxisting renal disease?

Yes____ No____ Explain____________________

Urinalysis:

Date	Vol.	Sp. Gr.	Protein	Red	Microscopic			
					Rbc	Wbc	Casts	Crystals

Blood Chemistry:

Date	BUN	Na	K	Cl	Ca	P	CO2	Glucose

Abnormalities of Urination:

____Dysuria ____Retention Other____________________

Abnormalities of Renal Function:

____Oliguria ____Polyuria Duration____________________

Min. 24 hr. urine vol.____________________ Max. 24 hr. urine vol.____________________

____Calculi ____Edema ____Hypertension: Max BP Other:____________________

Results of Function Tests, Bacteriologic Examinations, X-ray, Biopsy, etc.

FIG. 1. Nephrology report form

This calls for information on acute or chronic primary toxic nephropathy predisposition for secondary abnormalities in the kidney or urinary tract, such as infections or calculi, and aggravation of preëxisting diseases or conditions, such as uremia, nephrotic syndrome and acidosis. For the assistance of Washington area physicians table 1 shows the present inventory of nephrotoxins which will be expanded as data are made available.

It seems likely that if physicians will conscientiously attempt to understand the relationships between drugs and the kidney and the machinery which is set up for reporting, there will be a great deal learned over the next few years on the relationship between drugs and the kidney. Careful attention to these principles will enable patients, even those with the renal disease, to be treated safely with modern drugs.

GEORGE E. SCHREINER, M.D.

The Washington Academy of Sciences

President Nicklas asked me to represent the D. C. Medical Society at the meetings of the Board of Managers of the Washington Academy of Sciences.

This is a very brief report on how the Medical Society could relate to the Academy of Sciences. I have only attended 1 meeting and that was on April 16, which was held at the Cosmos Club. The one important thing that I learned was that the Academy is very anxious to have new members. There are 2 classes of membership, ordinary membership and the fellow. Recruitment for ordinary membership goes down to teachers in schools, particularly science teachers and those generally interested in science; the fellowship appointments are open to those who have achieved scientific distinction. I should imagine there are many members of the Medical Society who would not only enjoy but would profit from an association with the Washington Academy of Sciences.

Thomas McP. Brown, M.D.

Health Dept. Notes

Prenatal Care

Remarkable progress has been made in saving the lives of expectant mothers and their infants. In the United States, since 1920, maternal mortality has declined about 95 per cent and infant mortality about 75 per cent. This can be credited to many factors: public health progress, a better standard of living, improved hospital and medical care, and new preventive and therapeutic agents.

We in the District of Columbia have shared in that progress, and we have contributed to it. But we have not moved as quickly nor as far as we might. For example, more than 20,000 residents of the District become pregnant each year. The maternal death rate for these women in 1961 was 5.9; the rate for the entire country was 3.7. The infant mortality rate that year was 35.2 in the District; it was 25.3 for the Nation as a whole.

Along with this high mortality rate there is a record of late prenatal care among pregnant women and even of no care at all. There were in 1962 at least 3,600 women who began their prenatal care after the twenty-eighth week of pregnancy; there were at least 3,000 more who received no prenatal care whatsoever.

W. B. SAUNDERS COMPANY features the following new books in their full-page advertisement appearing elsewhere in this issue:
Child—THE LIVER AND PORTAL HYPERTENSION
New!—The first of a series of monographs on selected major problems in clinical surgery. Covers all aspects of the subject.
Beard and Wood—MASSAGE
New!—A well-illustrated guide to the best use of massage. Delineates principles and specific technique.
1963–1964 MAYO CLINIC VOLUMES
New!—The convenient way to keep up with newest developments from the Mayo Clinic. Both Medicine and Surgery are covered.

For these and other reasons I am considering a recommendation that prenatal care programs of the Department of Public Health be declared in the public interest and be offered without the limit of indigency. We have demonstrated that the requirement of such eligibility has prevented many pregnant women from seeking the prenatal care they need and has discouraged others from continuing the care they may have started. Yet these same women must at some time present themselves for delivery, and so D. C. General and other hospitals have become the last-minute, born-on-arrival stop for patients who should have been seen right along.

It is necessary, therefore, to bring into the public clinics, early in pregnancy and throughout their terms, those more than 3,000 women who do not seek and cannot receive the care which they ought to have.

In the 10 years between 1950 and 1960 the infant mortality rate for the District increased by 20 per cent. At the same time it dropped by 11 per cent in the Nation as a whole.

Between 1951 and 1961 maternal mortality had increased in the District until it was 60 per cent above the national average. The rest of the United States had not seen such a death rate since 1953, giving the District an 8-year lag behind the country as a whole.

We believe this trend has been intercepted. It must not again be permitted to occur. We must now seek the means to increase the effectiveness of our public prenatal clinics to protect the health of the babies and their mothers.

Murray Grant, M.D., D.P.H.
D. C. Director of Public Health

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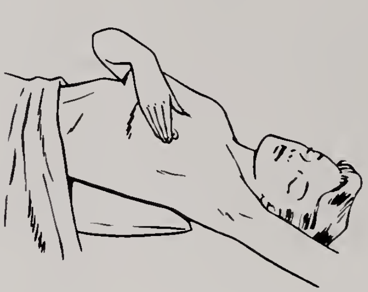

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How the Physician and Clergyman Meet in Patient Care*

THE REVEREND RICHARD K. YOUNG

Director, Department of Pastoral Care, North Carolina Baptist Hospital and Bowman Gray School of Medicine

Since World War II much has been written about doctor-minister coöperation. During a recent year, for example, over 75 articles on religion appeared in medical journals in the United States. In addition, frequent "summit conferences" have been held between leaders in religion and medicine discussing theoretically the values that would accrue from the healing team approach. Discussion between doctors and ministers is valuable, but the theory of coöperation must move from the conference table to a face-to-face relationship between the doctor and the minister across the bed of the patient.

Theological seminaries and many hospitals are training young ministers today in how to minister more effectively to the individual. The American Medical Association 2 years ago established a Department of Medicine and Religion which is now urging both professions to cut through the "underbrush" and problems of communication and start coöperating at the grass-roots level in the local community.

Time does not permit a breakdown of the batting average of each profession in so far as what each profession has contributed to the other. On the one hand, the church has been responsible for establishing hospitals, beginning with almshouses, down to the present day, but it cannot take credit for seeing the need of a hospital chaplain. Dr. Richard C. Cabot, a noted surgeon, saw the need and paid the salary of the first Protestant hospital chaplain in this country. On the other hand, Dr. Walter L. Bierring[1] related that "a distinguished Baptist clergyman, who was close to John D. Rockefeller, read the first edition of Sir William Osler's textbook of the Principles and Practice of Medicine very carefully and noted the large number of diseases for which there was no specific and definite form of treatment. This was called to the attention of Mr. Rockefeller, resulting in the establishment of the Rockefeller Institute for Medical Research in New York City, which distinctly influenced medical investigation around the world."

It is high time both professions laid aside the shackles of envy, jealousy, self-centeredness, and possessiveness, and focused attention on the sick individual. Both professions are dedicated to the belief in the eternal worth of a human soul in the sight of God.

May I offer several points for your consideration as we attempt to find a closer interpersonal working relationship.

1. Ignorance and prejudice of extremists in both professions.

A minister came into the North Carolina Baptist Hospital and visited in a 4-bed ward without speaking to a nurse or doctor and, therefore, had no knowledge of the condition of the patients in the ward. Three of the patients were waiting for thyroid operations, and 1 in particular had for 5 days been under special treatment designed to quiet her nerves sufficiently to prepare her for operation. The hyperthyroid patient is easily excited because of his organic condition, and in 10 minutes after the minister entered the room he had what he thought was an old-fashioned revival meeting in progress. During his prayer 2 of the patients started clapping their hands and shouting at the top of their voices. The nurse and doctor soon arrived on the scene. The minister resented their interference, and they resented his even more. In this case the minister had resources which could aid the doctor, but because of his lack of knowledge he did more harm than good. One sometimes wonders which is the more ineffective, zeal without knowledge or knowledge without zeal.

An example at the opposite extreme is the case of a young man 22 years of age who sought a minister's help on an emotional problem. When asked if he had been to a physician, he said, "Yes, but I was even more upset by the advice I was given. The doctor said if I would go out and have promiscuous sex relations it would help me to grow up. But my conscience rebels against such a thing. I have been a regular attendant at church all my life, and I know that the doctor is wrong."

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* This is a portion of the Third Annual Davidson Lecture on Religion and Medicine, presented before the Medical Society of the District of Columbia in Washington, D. C., October 30, 1963.

Of course, the majority of doctors as well as ministers know that whereas this boy had 1 "devil" to begin with, he would have had 7 if he had followed this doctor's advice.

2. The unconscious tendency to play God, in my opinion, is an occupational hazard in both the ministry and medicine. This is probably due to the fact that members of both professions are constantly dealing in ultimates. For instance, when several physicians agree upon a diagnosis, it is an ex-cathedra communication to the mind of the layman and is not subject to debate. Likewise, the minister deals with ultimates as he stands in the pulpit and proclaims the eternal truths of the Bible. The clergyman's habit of speaking of "my parishioner" and the physician's habit of saying "my patient" can unconsciously connote a possessiveness which is detrimental to the healing team approach.

3. A recognition of the fact by both the doctor and the minister that each has a distinct function to perform. Each has a unique role founded in tradition and placed upon him automatically by the expectancy of the patient. I have known ministers who tried to prescribe pet treatments and doctors who talked too much about their pet theology.

4. There is no sharp line of demarcation between body, mind, and spirit. In fact, neither exists as an entity except in relation to the others. For this reason there can be no mechanically simple definitions of function between the doctor and the minister. There must necessarily be overlapping when each is using the same set of facts in personality background. Thus, the common meeting-ground of the doctor and the minister is in the middle of the emotional and spiritual life of the individual. This demands a greater degree of maturity than when each is working separately in his own little sphere. When the welfare of the patient is the first concern the team members are not disturbed by the overlapping in their ministry, and thereby a therapeutic community is created.

5. The most powerful medicine in this universe to heal is the power of Christian love. I quote Dr. Milford Rouse,[2] who said, "The most potent 'wonder drug' in medicine is not a sulfa compound nor one of the varied antibiotics of recent decades, but something that has been available and successfully used for centuries—the physician himself as a therapeutic agent."

6. Finally, the partnership between doctors and ministers has been found effective and its value demonstrated through the work of chaplains in hospitals in this country. Now the time has come for this partnership to be realized throughout our society. Too often the sick person is dealt with by the physician and the minister without the knowledge of their common effort and goal, and in some instances all 3 individuals are members of the same church. The pathetic weakness lies in the fact that each worker, too often, is going his own way, whether he carries a black bag or a Bible, with little attempt at communication with the other. In my experience in a medical center I have been impressed with the frequency with which people have been referred to me from the local community whose illnesses responded to treatment only when the minister and the doctor worked together in a unified team approach. There is no excuse for professional leaders in a community to allow their personal immaturities to perpetuate a form of "therapeutic imperialism" at the expense of the patient. The healing of these people is both the justification and the reward for collaborative efforts. To see a person having been shackled and bound mentally, physically, and spiritually being emancipated by the blended efforts of a healing team and to have a part in this venture is worth all the discipline it demands.

This presentation can be summed up in the words of Kelley Barnett: "Across the patient's bed we face each other: you in your white coat, a stethoscope in your hand; I in my black coat with a prayerbook in my hand. At the beginning we were one: since the beginning we have always been together, unavoidably related, and when you are true to the oath of medicine and I true to the ordination vows, the center of interest has been, is and must always be in the man on the bed, your patient, my parishioner, God's creation. And if we work in unity together, the patient will come to see, to know, to love the Father God who through us, in us, by us, and in spite of us, remains, the Ultimate One Who '. . . healeth all our diseases and forgiveth all our iniquities.' "[3]

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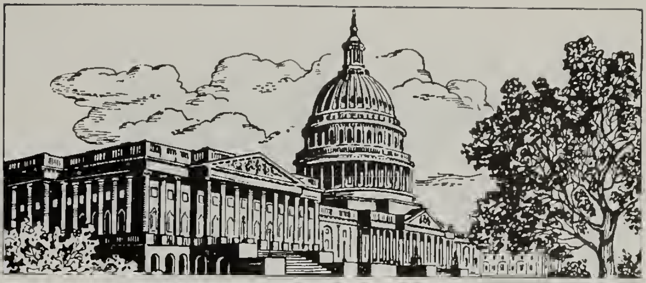
2. Rouse, M. O.: Presidential Address, delivered at the 53rd Annual Meeting of the Southern Medical Association, held in Atlanta, Ga., November 16–19, 1959.
3. Bird, B.: Talking with Patients. Philadelphia: Lippincott, 1955.



NEWS & PERSONALS

Boards & Committees

The Executive Board of the Medical Society of the District of Columbia held its regular meeting, April 27, 1964, in the Society's building. Dr. Victor R. Alfaro, Chairman, presided. Present were Drs. C. Willard Camalier, Jr., Karl C. Corley, J. Spencer Dryden, Harold M. Hobart, Raymond T. Holden, Edward W. Nieklas, Josephine E. Renshaw, Duane C. Richtmeyer, Paul R. Wilner, and Mr. George Cooley, Secretary. Present by invitation were Mr. Warren Magee, the Society's legal counsel, and Mr. John A. d'Epagnier, architect for the Society's new headquarters. The meeting was called to order at 7:30 p.m.

Committee Meetings: The Secretary reported that the following committees had met since the Board meeting in March:

March	24	Subcommittee of Committee on Medicolegal Problems
	31	Committee on Ruffin and Other Bequest Funds
April	1	Committee on Constitution and By-laws
	9	Medical Journal Exchange Committee
	12	Ad Hoc Committee on Mass Polio Immunization Program
	13	Committee on Medicolegal Problems
	15	Insurance Committee
	21	Grievance Committee
	22	Committee on Constitution and By-laws
	22	Liaison Committee with the Clergy

Board of Credentials: The Executive Board approved the following recommendations of the Board of Credentials:

Active Members

Marvin Leon Adland, 5410 Connecticut Avenue, N.W.
Robert Peter Kling, 3800 Reservoir Road, N.W.
Paul Edgar Shorb, Jr., 2300 K Street, N.W.
Lillian G. Wheeler, 1915 16th Street, N.W.

Associate Members

Keith Balwin Cassells, 4057-A Minnesota Avenue, N.E.
John Thomas Hart, USAF Hospital, Andrews Air Force Base
Louis P. Kirschner, Georgetown University Hospital
Angus Winston McLaurin, 3415 Hamilton Street, Hyattsville, Md.

Affiliate Member

Walter Benjamin Sheer, 7200 Marlboro Pike, S.E.

Resident-Intern Member

Juan Reynaldo Fraga, 1555 South 28th Street, Arlington, Va.

Transfer

Resident-Intern to Associate: Martin Gibbs

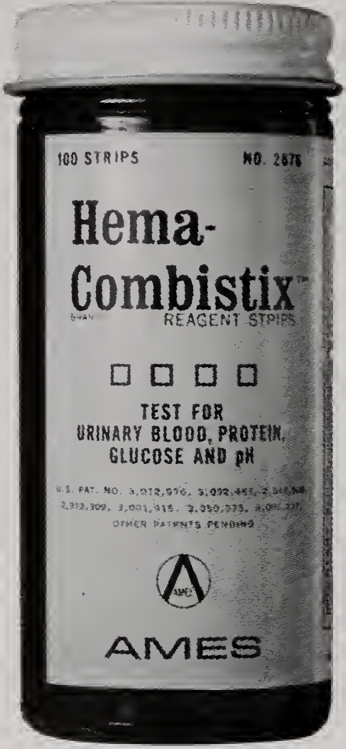
House Committee: Mr. Magee (attorney) and Mr. d'Epagnier (architect) reviewed the present status of the new building plans, which are now in their final stage.

Finance Committee: The audit for 1963 by James J. Sanders, C.P.A., was reviewed and approved as presented.

Student AMA Request: The Board voted to allot $100 to each local medical school (SAMA group) which requests financial assistance to enable their delegates to attend the Annual Meeting of the Student AMA in Chicago, April 29–May 3, 1964.

Liaison Committee with the Clergy: The Board voted to approve the recommendation of this Committee that the Davidson Lecture be made an annual event instead of a biennial lecture.

Resolution for Consideration by AMA House of Delegates: Dr. Holden, Senior Delegate to the AMA, discussed the resolution which the Executive Board had proposed for introduction to the AMA House of Delegates last December and which was withdrawn because of a petition signed by over 75 local physicians. He pointed out that the intent of this resolution had been accomplished in part by one introduced by the Pennsylvania delegates. However, if a special meeting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of the Society is to be held in late May or early in June to consider a new Constitution and By-laws, Dr. Holden suggested that a similar resolution, to be presented to the AMA House of Delegates in June, be placed on the agenda. The Board was agreeable to his suggestion.

Mass Polio Immunization Program: The Secretary reported briefly on the total number of persons who were immunized during the polio campaign. It was estimated that 299,832 persons in the District of Columbia were immunized on the first Sunday, April 19. The follow-up on Saturday, April 25, brought the total to 386,870 persons, or 48.9 per cent of the total population of the District of Columbia. By age groups, the percentages were as follows:

Under 19 years	65.9
20 to 30 years	51.8
31 years and over	37.4

The Secretary reported that the funds collected to date during the polio campaign have been placed in a special account entitled "D. C. Medical Society Health Foundation."

Use of Air Force Doctors in Private Hospitals: The Secretary reported that he had received a telephone call from the Commanding Officer of a local Air Force Base requesting that the Society issue a statement of policy concerning employment of Air Force physicians in local institutions during the evening or on their days off. Members of the Board agreed that they had no objection to such activities at this time provided that it is a privilege "used within reason."

TYPE I POLIO MAKE-UP DAY, Saturday, April 25, was a busy one at the D. C. Medical Society's headquarters as some 7,000 persons of all ages registered and received the vaccine which they had missed on the preceding Sunday. The line above extended for a time round the corner on Seventeenth Street, but it moved quickly; once inside the building these people were administered the vaccine without delay and were soon on their way to other activities.

CHIEF JUSTICE EARL WARREN (right) of the U. S. Supreme Court was among those who received his oral polio vaccine at the Medical Society's building, April 25. Serving him are Mrs. Bloneva Thaxton, Public Health nurse, and Pharmacist John W. McHugh. Between them is the Medical Society's President, Dr. Edward W. Nicklas, who was on hand to give personal attention to this distinguished registrant.

Doctors' Orchestra: Dr. Nicklas reported that he had received a letter from Dr. P. S. Constantinople, Chairman of the Committee on Music, requesting assistance in obtaining $1,200 annually for the Orchestra and for assistance in the purchase of 2 tympani drums. The Board voted that it did not believe it could proceed with the purchase of such drums at this time but would seek a sponsor for the Orchestra and would reconsider this request if such a sponsor is found.

On motion, the meeting adjourned.

MEDICAL SPECIALISTS—Board-eligible or certified, with combined residency and experience, to develop and provide authoritative medical policy and opinions regarding drugs and drug products; 5-day, 40-hour week. Entrance salary, $15,415. Periodic increases of $450 after first year. Advancement opportunities. Limited private practice permitted. Membership and participation in professional organizations encouraged. Liberal benefits of Federal employment, including life and health insurance, sick leave, vacation and retirement plans. Major costs of travel and transportation of household furnishings to Washington, D. C. will be paid. Send complete curriculum vitae to: JOSEPH F. SADUSK, JR., M.D., *Medical Director*, BUREAU OF MEDICINE, FOOD AND DRUG ADMINISTRATION, Washington, D. C. 20201.

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General News

Dr. Gilbert R. Herer has been appointed **Director of the Children's Hearing and Speech Center** which is affiliated with Children's Hospital. Mrs. Edna K. Monsees, who until recently has directed this Department from its inception, will continue in the capacity of Associate Director.

Dr. Herer was formerly Director of the Hearing and Speech Center at the Michael Reese Hospital and Medical Center, Chicago, and was Assistant Professor of Audiology at DePaul University. He holds B.S. and M.S. degrees in the hearing and speech field from Syracuse University, and a Ph.D. in audiology from Northwestern University. While serving in the U. S. Army he was assigned to the Audiology and Speech Center of Walter Reed Army Hospital in Washington.

The Cancer Aid Group, a volunteer group which was organized in 1947 to aid in the fight against cancer, distributed checks totaling $14,100 to several organizations and institutions in presentation ceremonies, April 20, at Temple Israel Synagogue in Silver Spring, Md.

Dr. Sanford L. Leiken accepted $4,000 for Children's Hospital Tumor Clinic, and Dr. William P. McKelway, a like amount for the Warwick Memorial Clinic, both to be used for fellowships; Mr. Joseph W. Leverenz, of the District Division of the American Cancer Society, and Mr. R. Hal Silvers, of the Maryland Division of the ACS, received $2,100 each to be used for services to cancer patients. For the same purpose Dr. U. V. Wilcox, of Sibley Memorial Hospital, received $500. Dr. Jack J. Rheingold was awarded $800 to be used for service to leukemia patients at George Washington University Hospital. Children's Hospital received an additional $600 for medical equipment.

The Louis Mackall Medical Society has elected new officers. They are:

Dr. Robert Taylor, *President;* Dr. Eugene J. McDonald, *Vice President;* and Dr. Charles W. Jones, *Secretary-Treasurer.*

Fairfax Hospital (Virginia) has been awarded full accreditation by the Joint Commission on Accreditation of Hospitals. The Commission previously had awarded the Hospital short-term accreditation for a year. The new accreditation, based on an evaluation survey in March, is for a 3-year period.

Dr. Frederick Stohlman, Jr., of Boston, has received the American Society of Experimental Pathology Award of $1,000 given annually by Parke, Davis & Company to a member of that Society under the age of 40 who has made the most outstanding contribution to the conquest of disease. He was cited for his contributions to the understanding of the regulation of red blood cell production and of the role played in this process by the hormone, erythropoietin.

Dr. Stohlman is a Washingtonian and an alumnus of Georgetown University School of Medicine (Class of 1948). At Georgetown, and now at Tufts University Medical School, he held the rank of Associate Professor of Medicine. In addition to his teaching at Tufts he is Director of Research and Hematology at St. Elizabeth's Hospital in Boston.

Dr. James E. Birren is now Director of the Aging Program at the National Institute of Child Health and Human Environment.

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Personals

Dr. Harold L. Hirsh received a plaque honoring him for his service to senior citizens at a luncheon, April 20, at the Sheraton Park Hotel. On that occasion he was given the Minnie Goldsmith Award for "distinguished and devoted community service" by the Hebrew Home for the Aged in recognition of his work in developing a program of volunteer medical care for residents of the Home, where he has served as Medical Director for 11 years.

Dr. Leon Salzman was elected President of the Academy of Psychoanalysis at its Ninth Annual Meeting in Los Angeles, May 2–3. Dr. Salzman is Clinical Professor of Psychiatry at Georgetown University School of Medicine. He is consultant in psychiatry to the National Institutes of Health and to St. Elizabeths Hospital. He is also a member of the Board of Directors of the Washington School of Psychiatry.

Dr. Theodore J. Abernethy was elected Third Vice President of the American College of Physicians at its Annual Meeting in Atlantic City, April 6–10. **Dr. Thomas W. Mattingly** is the new Governor for the District of Columbia.

At the same meeting, the following members of the D. C. Medical Society were inducted into Fellowship: **Drs. Alfred Baer, C. David Cooper, Arnold A. Lear, John F. Maher, and Herbert L. Tanenbaum.** Elected Associate members were **Drs. Daniel H. Mintz and Alan M. Weintraub**; also **Dr. Solomon E. Barr**, of Silver Spring, Md., an Associate member of the D. C. Medical Society.

Dr. Maurice H. Herzmark won the top award out of 44 presented to physicians throughout the country for articles submitted to *Medical Economics* in 1963. His award-winning article, "Tips on Testifying," began serially with the May 4 issue of *Medical Economics* and is running consecutively in 5 more issues. Along with the citation went a check for $1,000 to Dr. Herzmark.

Dr. Percy E. Hopkins, Chairman of the Board of Trustees of the American Medical Association, has announced the appointment of a number of

D. C. Medical Society members to AMA committees. **Dr. Charles D. Shields** was appointed Chairman of the Committee on Rehabilitation. This Committee is currently composed of 6 members appointed by the Board of Trustees.

Dr. Dale C. Cameron, Superintendent of St. Elizabeths Hospital, an Associate member of the D. C. Medical Society, was appointed Chairman of the newly formed Committee on Alcoholism and Addiction of the AMA Council on Mental Health.

Four members of the Society received reappointments: **Dr. James E. Fitzgerald,** member of the Council on National Security; **Dr. Charles E. Rath,** member of the Committee on Blood; **Dr. Joseph F. Sadusk, Jr.,** Chairman of the Committee on Medicolegal Problems and a member of its Subcommittee on Medicolegal Education and Liability; **and Dr. R. Lomax Wells,** member of the Council on Occupational Health.

The American College of Obstetricians and Gynecologists inducted new Fellows into the College at its Twelfth Annual Clinical Meeting, May 17–22, at the Americana Hotel, Bal Harbour, Fla. Among them were the following Washington physicians: **Drs. Ridgely C. Bennett, C. Lee Campbell, Ernest W. Lowe, Cleveland E. Smith and Charles E. Townsend. Dr. Orhan H. Aydinel,** of Washington, **and Dr. James E. Abell,** of Hyattsville, Md., Associate members of the Medical Society, were also inducted into Fellowship in ACOG.

Dr. Allen S. Cross and Dr. Lawrence A. Pyle, Jr. were elected to Fellowship in the Industrial Medical Association during its 49th Annual Meeting in Pittsburgh, April 13–16. Dr. Cross is President of the Federal Medical Directors for Occupational Health; Dr. Pyle is Assistant Medical Director of the Chesapeake and Potomac Telephone Companies.

Dr. John M. Keshishian, at the invitation of the Soviet Academy of Sciences to the American Academy of Sciences, lectured on vascular and thoracic surgery within the USSR during the month of May. He also paid a visit to Warsaw, Poland, where he delivered a heart-lung machine about a year ago to that country from MEDICO-CARE.

Dr. Keshishian is a member of the MEDICO Advisory Board to CARE, and on his return through Central Asia visited 2 of MEDICO's teams in Afghanistan.

Dr. Lester S. Blumenthal has been appointed by the D. C. Board of Commissioners to the Citizens' Traffic Board for a term of 3 years, ending April 1, 1967.

Dr. John H. Hazard has been elected to the Board of Directors of the Eastern Savings and Loan Association of Washington.

Physician to the President

REAR ADMIRAL GEORGE G. BURKLEY, MC, USN, Physician to the President

Rear Admiral George G. Burkley, MC, USN, was appointed Assistant Physician to President Kennedy in February 1961, and later in the same year became Physician to the President. He serves President Johnson in the same capacity. The Executive Board of the D. C. Medical Society nominated him to Honorary membership, March 30, 1964.

Admiral Burkley received both his Bachelor of Science and Doctor of Medicine degrees from the University of Pittsburgh, the latter in 1928. A specialist in internal medicine and cardiology, he practiced in Pittsburgh and was Assistant Professor of Medicine at the University of Pittsburgh until he entered the Navy as a Lieutenant Commander in the Medical Corps in 1941, just preceding the attack on Pearl Harbor. Five

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(1888-M)

years later he was transferred from the Naval Reserve to the Regular Navy, and in 1948 attained the rank of Captain. In August 1962 he was promoted to the rank of Rear Admiral.

Before assuming his White House post, Admiral Burkley had served as medical officer at Camp David, Maryland, during the administration of President Dwight D. Eisenhower. At the time, he was serving as Commanding Officer of the U. S. Naval Dispensary in Washington, D. C.

Admiral Burkley holds an honorary degree from the University of Pittsburgh which was bestowed upon him October 2, 1963 for his outstanding achievements in the fields of medicine and public service.

Obituaries

Charles Stanley White, Jr., B.S., M.D., F.A.C.S.

(1915–1964)

The Doctors Hospital and the community suffered a great loss in the death of Dr. Charles Stanley White, Jr., on Friday, April 10, 1964. His many friends and associates find it difficult to understand why one so able and talented should be taken from them at the height of his career.

A native of Washington, he was born December 9, 1915, and received his elementary education here. He graduated from Harvard University in 1937 and received a Doctorate of Medicine from George Washington University in 1942. His surgical residency training was at Union Memorial Hospital in Baltimore and at the Cleveland Clinic. He served on active duty as Major in the Army Air Force from 1943 to 1946. For the past 16 years he has been associated with his father, Dr. Charles Stanley White, in the practice of surgery.

At the time of death Dr. White was President of the Board of Directors and Chief of Surgery at Doctors Hospital, and quite literally he gave his life to this institution. Aside from devotion to his family, Doctors Hospital was Charles' entire life, and, through his son, now taking premedicine at Harvard, it is expected that the family commitment to the Hospital will continue.

In his dedication to the welfare and survival of Doctors Hospital he recognized the need for it to be a "service" facility offering superior medical care in Washington. It was his true and often expressed wish that Doctors Hospital be the best hospital in town. Under his recent and energetic leadership this goal became clarified and a course steered toward it. For this all credit is due him. May those who follow set their sights as high. This is their obligation, for Doctors Hospital is his memorial.

J. H. P. Garnett, M.D.

CHARLES STANLEY WHITE, JR., M.D.

Dr. White was a Fellow of the American College of Surgeons and a diplomate of the American Board of Surgery. He was Clinical Instructor in Surgery at the George Washington University School of Medicine.

He was elected to Active membership in the D. C. Medical Society in 1946. He was a member of the American Medical Association, the Southeastern Surgical Congress, the Washington Academy of Surgery, and the Hippocrates-Galen Medical Society. His social clubs were the Chevy Chase Country Club, the Metropolitan, and Rotary.

He leaves his wife, Mrs. Rachel Horak White, a son, Charles Stanley White III, and 2 daughters, Sally and Deborah, all of the home residence, 5117 Tilden Street, N.W. Both his parents survive him together with a sister, Mrs. Mary Alice Kimball, of Rye, N. Y.

Joseph Breckinridge Bayne, M.D.

(1880–1964)

Dr. J. Breckinridge Bayne, a Life member of the Medical Society of the District of Columbia, died, February 23, 1964, at his home, 1827 – 24th Street, N.W.

Dr. Bayne was a member of a family associated with Oxon Hill (Maryland) since 1825. Born June 28, 1880, in Washington, D. C., he attended the Episcopal High School in Alexandria, Va., the Phillips Andover Academy in Andover, Mass., and graduated in medicine from Georgetown University in 1903. He interned at Providence Hospital and continued on its staff as attending physician.

In 1916 he interrupted his private practice to go to London and serve with the Allies. He joined a special British Medical Mission in Bucharest, Rumania, caring for the wounded soldiers of the Rumanian Army. With the entry of the United States into the war, he was officially declared a prisoner of war by the German authorities. There were so few doctors in Bucharest, however, that he was permitted to continue his services at the hospital assisted only by the Rumanian women he had trained as nurses. Dr. Bayne was in charge of three Red Cross hospitals which handled only typhus cases during the typhus epidemic which swept through Rumania during the German occupation of 1917–18. In spite of his status as prisoner of war he was personally commended for "devotion" by a German field marshal.

He received personal recognition from the King and Queen of Rumania for his medical services. They awarded him the Star of Rumania, the Order of Crossed Swords, and the Order of Regina Maria, First Class. In addition, a hospital in Bucharest was named for him. His book, "Bugs and Bullets," described his Rumanian experiences.

After the war he returned to Washington to resume his private practice. He retired in 1939.

During World War II he volunteered his services at the Pentagon.

He was elected to membership in the Medical Association of the District of Columbia in 1907, and his membership was transferred to the Medical Society at the time of the amalgamation. He became a Life member in 1948. He was a member of the Society of the Cincinnati and the Chevy Chase, Metropolitan, and Sulgrave Clubs.

Surviving him are his wife, Mrs. Edith Jenkins Bayne; a daughter, Mrs. Edward E. Smith, of Palo Alto, Calif.; and 3 sisters, Mrs. Scott D. Breckinridge, Mrs. William Goodacre, and Mrs. G. W. S. Castle, Sr., all of Oxon Hill, Md.

Karl Dortzbach, B.A., M.D.

(1902–1964)

Dr. Karl Dortzbach, a staff member of the Washington Clinic, died, February 23, 1964, at Suburban Hospital after a long illness. He had practiced in the Washington area for almost 30 years.

Dr. Dortzbach was born in Denmark, November 26, 1902. He came to the United States with his parents when he was about 7 years old. He attended Asbury College in Wilmore, Kentucky, and received his B.A. degree from Columbia University in 1929.

After doing graduate work in endocrinology at Columbia, Dr. Dortzbach enrolled at Long Island College of Medicine, graduating in 1934. He interned at Sibley Hospital in Washington the following year. Following his internship he was in private practice in Washington until 1955, when he joined the Washington Clinic.

Dr. Dortzbach was elected to Active membership in the Medical Society of the District of Columbia in 1938. He was a member of the American Medical Association and the Louis Mackall Medical Society.

Surviving him are his wife, Mrs. Rachel Early Dortzbach, of 5100 Dorset Avenue, Chevy Chase, Md.; a son, Dr. Richard Karl Dortzbach, who is interning at the University Hospital in Madison, Wisconsin; and a daughter, Mrs. Janet Neff, of Philadelphia. He also leaves 2 brothers, Fred Dortzbach, of Arlington, Va., and Peter Dortzbach, of Herndon, Va., and 3 sisters: Mrs. Catherine Jensen, of Arlington, Va.; Mrs. Christine Jacobsen, of Narco, Calif.; and Mrs. A. J. Honore, of Pleasant Hill, Calif.

John Watkins Trenis, M.D., F.A.C.P.

(1910–1964)

Dr. John W. Trenis, an authority on lung diseases, died, March 26, 1964, at the Washington Hospital Center. He lived at 4273 Vacation Lane in Arlington, Va. For many years he had maintained offices at 1150 Connecticut Avenue, N.W.

Dr. Trenis was born in Catlett, Va., June 7, 1910, to Lemual and Hattie McKee Trenis. He attended Calverton High School in Calverton, Va. and the Virginia Polytechnic Institute. He graduated in medicine from the University of Virginia in 1933 and interned the following year at the Virginia Mason Hospital in Seattle, Washington.

For postgraduate study in pulmonary diseases he took resident training at Blue Ridge Sanatorium in Charlottesville, Va., and at the Tuberculosis Unit of the University of Michigan at Ann Arbor. He also spent a year in resident training in internal medicine at the University of Michigan and served on the faculty as Instructor of Internal Medicine the following year.

Dr. Trenis began his Washington practice in 1939. He was on the staff of the Washington Hospital Center, where he founded the Pulmonary Functional Laboratory. He was on the faculty of George Washington University School of Medicine as Associate Clinical Professor of Medicine. He was consultant in pulmonary diseases to Walter Reed General Hospital and to the U. S. Naval Hospital in Bethesda.

During World War II Dr. Trenis served with the Army Medical Corps from 1942 to 1945, and retired with the rank of Major.

He was elected to Active membership in the D. C. Medical Society in 1940. He was a Fellow of both the American College of Physicians and the American College of Chest Physicians, and a member of the American Medical Association, the American Trudeau Society, the Kober Medical Society, the Medical Arts Society, and the Smith-Reed-Russell Society. He authored a number of articles in the field of pulmonary diseases and contributed a chapter to the seventh edition of Cecil's "Textbook of Medicine."

Surviving him are his wife, Mrs. Nelle Elliott Trenis, and a son, Richard Trenis, both of the home address. He also leaves his parents, who still reside at Catlett, Va., and a brother, Edmund Trenis, of Catlett.

Williamson Crothers Welburn, M.D.

(1874–1964)

Dr. Williamson C. Welburn, retired Medical Examiner for Arlington County, Va., died, March 19, 1964, at his home, 3408 North Glebe Road, Arlington.

Dr. Welburn was born in Nashville, Tenn., October 5, 1874. He graduated in medicine from Vanderbilt University in 1899, following which he was house surgeon at New York Polyclinic for a year. He practiced in Tennessee and Oklahoma for several years, moving to Virginia in 1905.

Because of the lack of drugstore facilities in Arlington at that time, Dr. Welburn, who also held a degree in pharmacy, opened his own apothecary at Fairfax Drive and North Stuart Street. He disposed of it during World War I when he left to join the 601st Army Engineers Medical Corps. He served in France and was discharged as Captain. During World War II he served with the Selective Service System in Arlington.

The Welburn Award of the Arlington County Medical Society was named for him in 1948, when he celebrated 50 years of practice. He had practiced medicine for 63 years when he retired as medical examiner in 1961, a post he had held since the 30's. For the last 10 years he had been Honorary Chief of Staff of Arlington Hospital, which he helped establish in 1944.

Dr. Welburn was an Associate member of the D. C. Medical Society from 1920 until he resigned in 1946. He was a Past Master of the Columbia Masonic Lodge and a member of St. George's Episcopal Church in Arlington.

His wife, Mrs. Mary King Welburn, survives him together with a daughter, Mrs. Mary W. Mann, also of the home address.

John Dunlop, M.D.

(1876–1964)

Dr. John Dunlop, retired orthopedic surgeon, died, March 15, 1964, in Princeton, N. J. He was a former member of the District of Columbia Medical Society.

Dr. Dunlop was born in Washington, D. C., July 4, 1876. A graduate of Princeton University, he received his medical degree from Johns Hopkins University in 1902. He interned at Union Protestant Infirmary in Baltimore, following which he served on the staff of Carney and Children's Hospitals in Boston.

Dr. Dunlop returned to Washington in 1905 and was on the staffs of Children's and Georgetown University Hospitals. From 1909 to 1919 he was Professor of Orthopedic Surgery at Georgetown.

During World War I he served, with the rank of Major, in the Army Medical Reserve Corps, attached to the British Army.

After the War Dr. Dunlop moved to Pasadena, Calif., where he practiced for 30 years before he retired and moved to Princeton in 1953. During his practice in Pasadena he was on the faculty of the University of Southern California as Associate Clinical Professor of Orthopedic Surgery.

He was an Active member of the D. C. Medical Society from 1906 until 1919.

He leaves his wife, Mrs. Gertrude Schaeffer Dunlop, of Princeton, and 2 daughters, Mrs. Elizabeth S. Mellon, of Pasadena, and Miss Helen Dunlop, of New York.

Sphenopalatine Neuralgia—Jaeger

(*Continued from page 259*)

All had minor painful residuals about the mouth that appeared to be related to gustatory maneuvers. This pain was similar to the well-known discomfort about the submaxillary and parotid glands that can be so easily elicited in patients with mumps. One may speculate that an autonomic-nerve control imbalance has been produced by resecting the autonomic nerves referred to and that the pain probably travels to the brain over either the cervical spinal nerves or other uninterrupted autonomic fibers.

Echoencephalography—Russo and Arnold

(*Continued from page 263*)

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Arteriovenous Anomalies of Fusiform Gyrus—Hayes

(*Continued from page 268*)

promised by pressure transmitted through the temporal lobe.

Ischemia of the loop fibers due to diversion of blood through the anomaly may cause functional impairment. The latter concept is supported by the fact that the visual fields of 2 patients improved following surgery.

The location of these lesions is close to the tentorial aperture. The reaction to bleeding with swelling of the brain, and in 1 case of cyst formation, would directly displace the mesencephalon away from the lesion forcing the opposite cerebral peduncle against the tentorial edge. This sequence of events, similar to that described by Kernohan and Woltman,[2] would lead to long-tract signs ipsilateral to the lesion.

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Syndrome of Gilles de la Tourette—Stevens

(*Continued from page 279*)

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CONTRAINDICATIONS: DONNATAL is contraindicated in acute glaucoma, advanced hepatic or renal disease, and known or suspected idiosyncrasy to any of its components.

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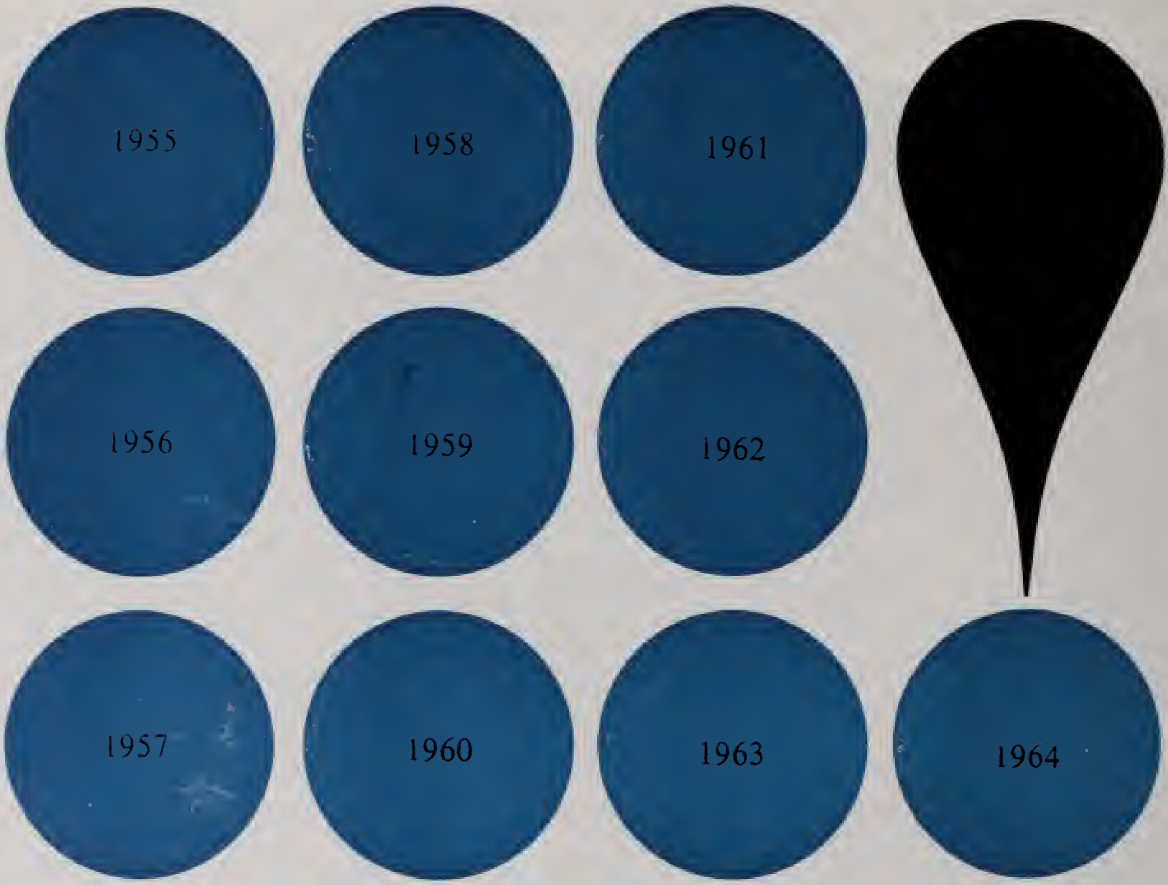

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Book Reviews

(*Continued from page 18*)

administrative agencies, laboratories and other organizations concerned, including U. S. A. E. C. Libraries. This is indeed a most useful feature.

It would be most agreeable to dilate further and in detail upon the virtues of this book, but space forbids. Suffice it to say here, this is a most valuable and helpful contribution which reflects great credit on the editor and also on the distinguished advisory committee which aided him.

I believe that this book will prove a most valuable addition to the library of all those seriously concerned or interested in the manifold applications of atomic energy.

Charles F. Behrens, M.D.

Man and His Future. A Ciba Foundation Volume. Edited by Gordon Wolstenholme. Price, $6.00. Pp. 410, with 8 illustrations. Boston: Little, 1963.

This report of a recent symposium includes both the prepared papers of the 27 participants and their spontaneous discussions. Some of the presentations are principally factual while others are entirely speculative. A majority of the participants are internationally outstanding basic scientists, nonmedical, and thoroughly literate. The discussions frequently sparkle.

In that the future course of man is a broad problem in preventive medicine, the subject is of special importance to physicians. The effects of intensified food production and of contaminants and additives on the health of whole populations are surely matters of medical interest. And so are the potential results of widespread chemical control of reproduction, of the abolition of infectious diseases, and of lengthening of life expectancy. This book is devoted to the long-term effects of technologic advances on the health and well-being of man in general.

This reviewer believes unreservedly that these implications are the proper concern of physicians and congratulates the Ciba Foundation for having presented to the medical public in so polished a form this subject of the future of man.

Since this conference necessarily involves arguments about what should happen—questions of ethics, or value judgments—this reviewer wishes that the symposium had included a prepared paper on the relevant changing concepts of modern ethics, particularly from the viewpoint of scientific philosophy. Such a paper could well have come from J. Bronowski (author of the book, "Science and Human Values"), whose contribution to the present symposium is limited to cogent remarks in several of the discussions. Perhaps this omission may be rectified in a future conference, or in an augmented edition of the book.

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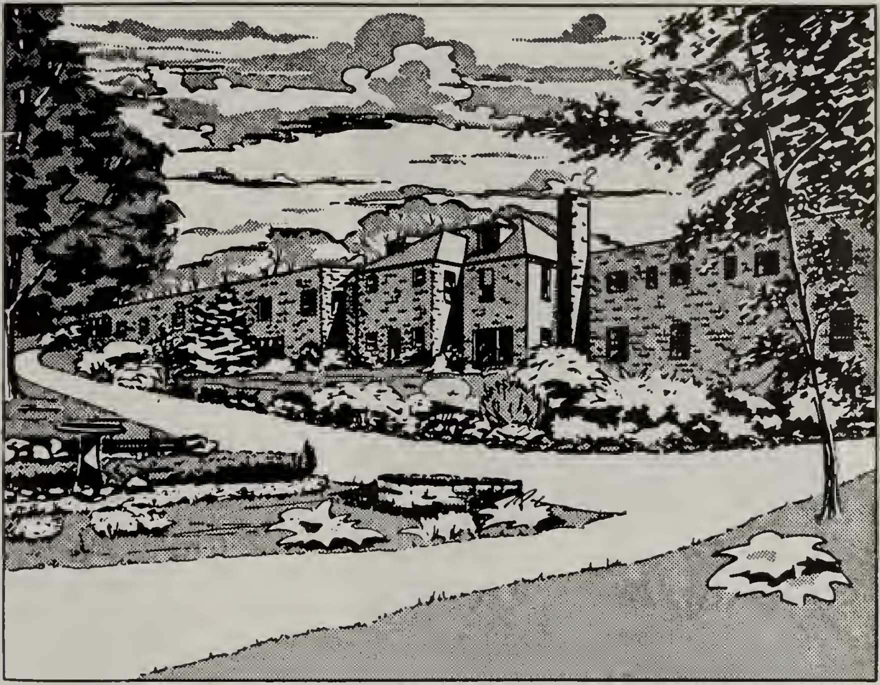

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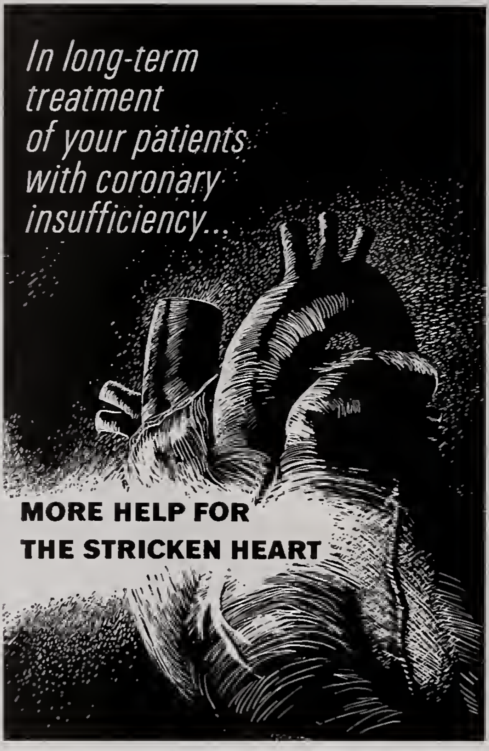
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August 2–6: National Medical Association. Hotel Statler-Hilton, Washington. Address: Mr. John T. Givens, Executive Secretary, 1108 Church Street, Norfolk, Va.

August 24–27: American Academy of Physical Medicine and Rehabilitation. Hotel Statler-Hilton, Boston. Address: Miss Cynthia M. Mallo, *Administrative Secretary*, 30 North Michigan Ave., Chicago, Ill. 60602

August 24–27: American Hospital Association. Palmer House, Chicago. Address: Dr. Edwin L. Crosby, *Director*, 840 North Lake Shore Drive, Chicago 11, Ill.

August 25–28: 17th Annual Meeting, American Association of Blood Banks. Shoreham Hotel, Washington. Address: Miss Lois J. James, 30 North Michigan Avenue, Chicago 2, Ill.

September 9–12: International College of Surgeons (North American Federation). Chicago. Address: Dr. Walter F. James, *Executive Director*, 1516 Lake Shore Drive, Chicago 10, Ill.

September 10–12: American Association of Obstetricians and Gynecologists. The Homestead, Hot Springs, Va. Address: Dr. Clayton T. Beecham, *Secretary*, 3911 Vaux Street, Philadelphia 29, Pa.

September 16–18: American Association of Medical Clinics. Americana Hotel, Bal Harbour, Fla. Address: Dr. R. S. Condie, *Secretary*, Palo Alto Medical Clinic, 300 Homer Avenue, Palo Alto, Calif.

September 25–26: American Medical Writers' Association. Benjamin Franklin Hotel, Philadelphia. Address: Mr. James E. Bryan, *Executive Secretary*, 2000 P Street, N.W., Washington, D. C. 20036

November 9–13: American College of Chest Physicians: Postgraduate Course No. 5. Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs. International Inn, Washington. Address: Executive Director, ACCP, 112 East Chestnut Street, Chicago, Ill. 60611

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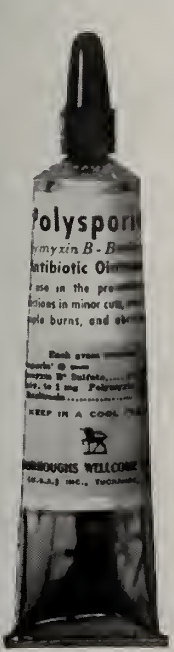

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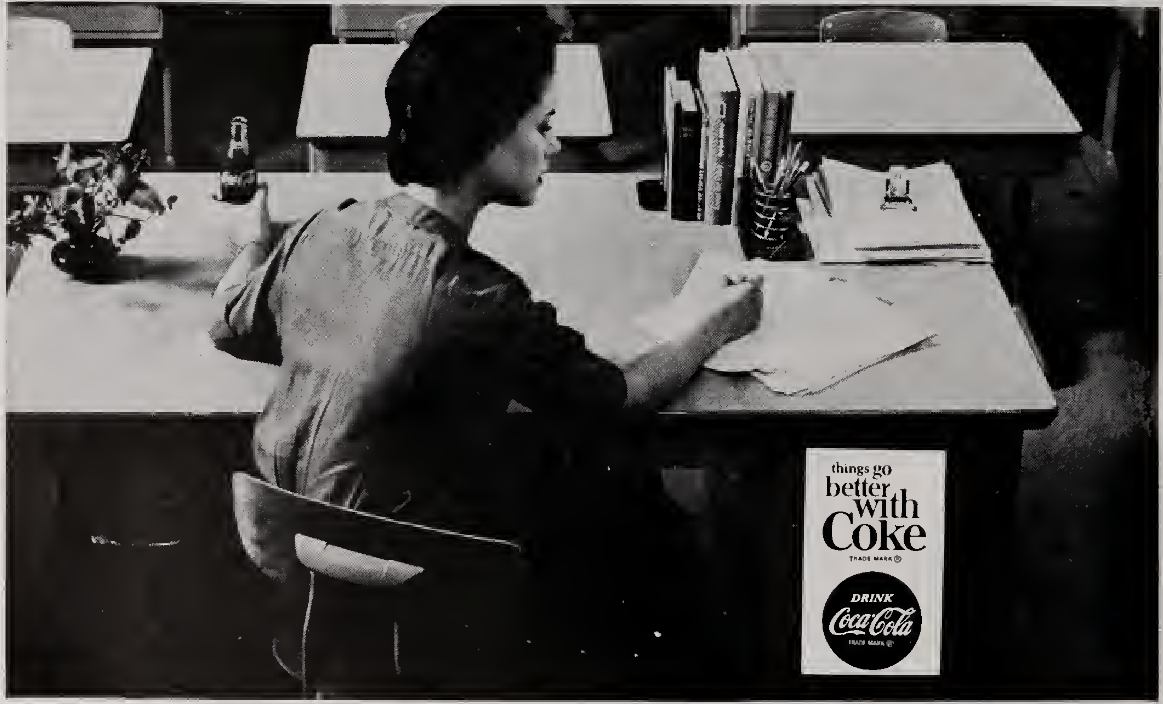

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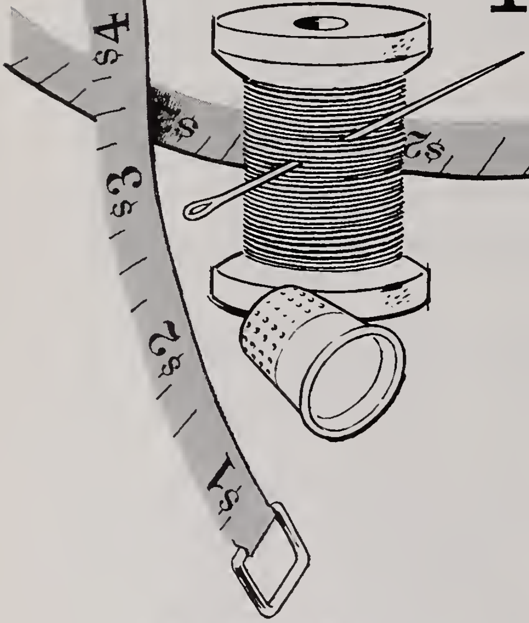

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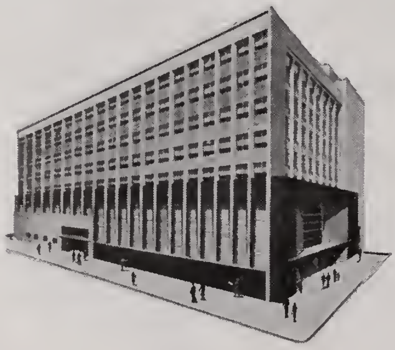

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T–text

Outwardly calm...but what goes on inside?

Appearances on the outside do not necessarily suggest what goes on inside. This is particularly true of the ulcer patient, who may appear jolly and unruffled to his neighbors, but presents to you the classic symptoms: organic and functional disorders of the G.I. tract, associated with anxiety and tension.

Consider, when you see him next, the value of PATHILON® SEQUELS® with Phenobarbital, which provides sustained anticholinergic protection from spasm and pain in the target areas, as well as sustained phenobarbital action against triggering anxiety. The controlled release of the active ingredients in the SEQUELS® formulation means protective medication day and night.

Effective in peptic ulcer, intestinal colic, ileitis, esophageal spasm, spastic colon, alcohol-induced G.I. upsets, gastric hypermotility and anxiety neurosis with G.I. symptoms. Should be used as adjunct to other measures.

Side Effects (due to tridihexethyl chloride): dry mouth, blurring of vision, constipation.

Contraindications: urinary bladder neck obstruction; glaucoma; obstructive congenital anomalies of the gastrointestinal tract; pyloric obstruction; congenital megacolon; and stenosing gastric or duodenal ulcer with significant gastric retention.

Also available, without phenobarbital, as PATHILON® Tridihexethyl chloride SEQUELS® 75 mg.

Pathilon® Sequels® with Phenobarbital Sustained Release Capsules

Each capsule contains: Tridihexethyl chloride, 75 mg., and phenobarbital, 45 mg.

LEDERLE LABORATORIES, A Division of AMERICAN CYANAMID COMPANY, Pearl River, New York Lederle

279-4

ATTENTION!

All members of the Medical Society of the District of Columbia who are *now insured* under the official income protection insurance program!

The Administrator of your plan, in keeping with the principle of providing the best coverage available to members of the medical profession, is pleased to announce that increased benefits are now available to eligible members*:

- **Increased weekly benefits**
- **Longer term of coverage for sickness**

You will be contacted shortly to provide you with details of these improved benefits and to advise you how they can be used to modernize your plan of income protection insurance.

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* This is an announcement only and does not contain any of the underwriting requirements for eligibility.

Joseph E. Jones, Administrator
1666 Connecticut Avenue, N.W.
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Tel. 483-3100

Mutual
MAXIMUM BENEFITS MINIMUM COST
OF OMAHA
INSURANCE COMPANY

New from Roche research

Valium®

(diazepam)

for
- situational, stress-induced tension
- the psychic tension of the common psychoneuroses
- emotional tension intensified by concomitant somatic components

also for
- the muscle spasms of cerebral palsy and athetosis

Dosage—Adults: Mild to moderate psychoneurotic reactions, 2 to 5 mg b.i.d. or t.i.d.; severe psychoneurotic reactions, 5 to 10 mg t.i.d. or q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; muscle spasm with cerebral palsy or athetosis, 2 to 10 mg t.i.d. or q.i.d.

Contraindications: Valium (diazepam) is contraindicated in infants, patients with a history of convulsive disorders or patients with a history of glaucoma.

Warning: Valium (diazepam) is not of value in dealing with psychotic patients manifesting anxiety and should be avoided when there is reason to believe the patient is psychotic.

Precautions: In elderly or debilitated patients, it is important to limit the dosage to the smallest effective amount to preclude the development of ataxia or oversedation (not more than 1 mg, 1 or 2 times daily initially, to be increased gradually as needed and tolerated). As is true of all CNS-acting drugs, until the correct maintenance dosage is established, patients receiving Valium (diazepam) should be advised against possibly hazardous procedures requiring complete mental alertness or physical coordination. Driving an automobile during the period of Valium (diazepam) therapy is not recommended. In general, the concurrent administration of Valium (diazepam) and other psychotropic agents is not recommended. If such combination therapy is used, careful consideration should be given to the pharmacology of the agents to be employed with Valium (diazepam)—particularly with known compounds which may potentiate the action of Valium (diazepam), such as phenothiazines, barbiturates, MAO inhibitors and other antidepressants.

Since Valium (diazepam) has a central nervous system depressant effect, patients should be advised against the simultaneous ingestion of alcohol and other central nervous system depressant drugs during Valium (diazepam) therapy. Safe use of Valium (diazepam) during pregnancy has not been established. The usual precautions are indicated when Valium (diazepam) is used in the treatment of anxiety states where there is any evidence of impending depression; particularly the recognition that suicidal tendencies may be present and protective measures may be necessary. The usual precautions in treating patients with impaired renal or hepatic function should be observed.

Side effects: In clinical use, fatigue, drowsiness and ataxia have been reported; in most instances these are dose-related and may be avoided by proper dosage adjustment. Mild nausea and dizziness may occur on occasion. As with any new agent, when it is administered for protracted periods of time, periodic blood counts and liver function tests are advisable. Abrupt cessation after prolonged overdosage may, in some patients, produce withdrawal symptoms (*e.g.*, convulsions, tremor, abdominal and muscle cramps, vomiting, sweating) similar to those seen with barbiturates, meprobamate and Librium® (chlordiazepoxide HCl). Changes in EEG patterns have been observed in patients during and after Valium (diazepam) treatment.

Paradoxical reactions, such as excitement, depression, stimulation, sleep disturbances, acute hyperexcited states and hallucinations have been reported. Other side effects noted have been blurred vision, diplopia, headache, incontinence, slurred speech, tremor and skin rash.

How supplied: For oral administration: Valium (diazepam) scored tablets, 2 mg, white, bottles of 50 and 500; 5 mg, yellow, bottles of 50 and 500.

ROCHE LABORATORIES / Division of Hoffmann-La Roche Inc / Nutley, N. J. 07110